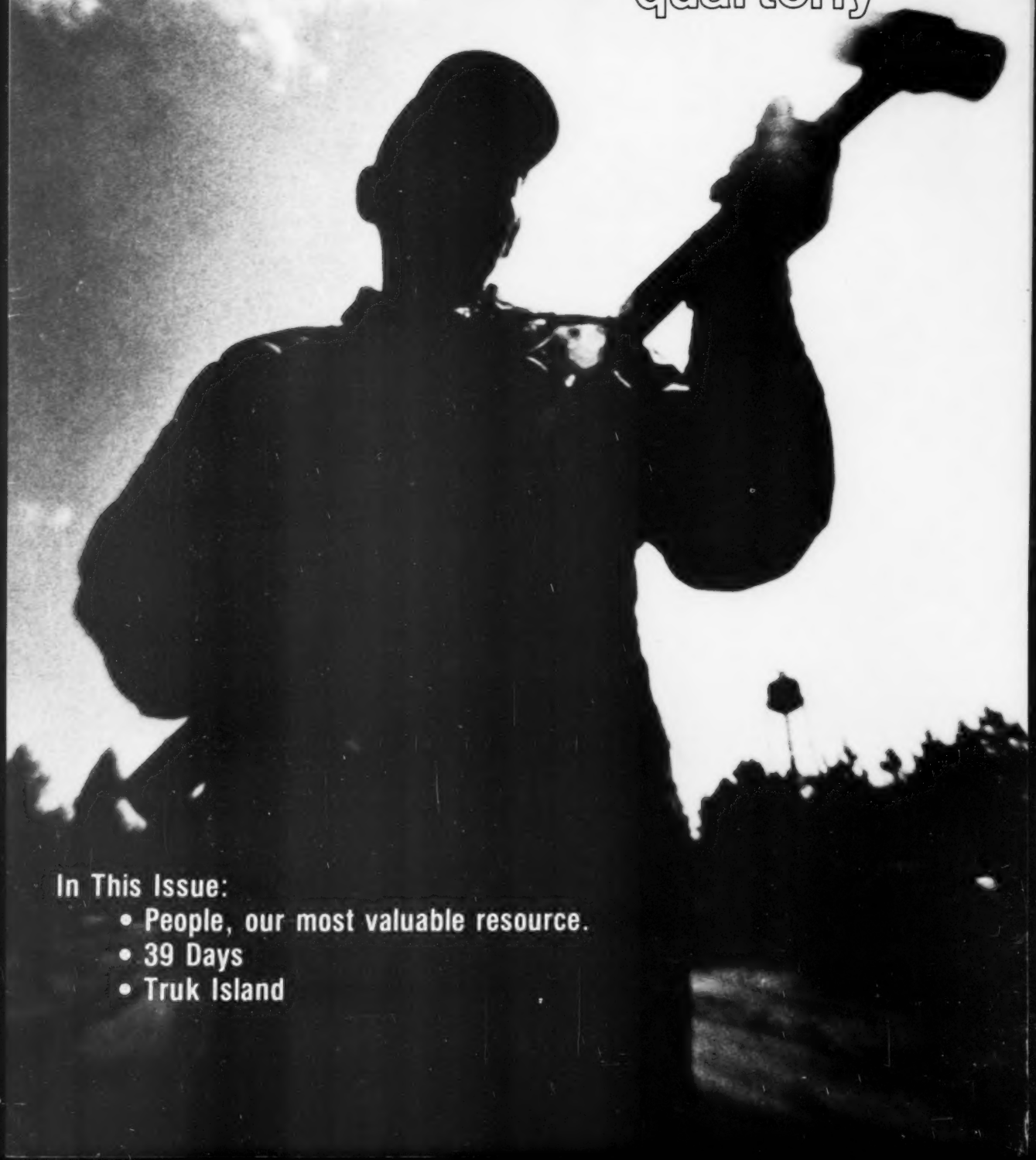
AFRP 85-1 Vol 23 No 3 Fall 1982

# air force engineering & services quarterly



In This Issue:

- People, our most valuable resource.
- 39 Days
- Truk Island

# From the Director

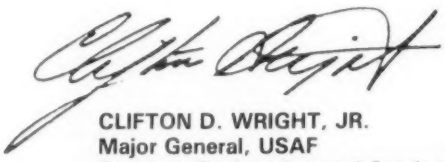
In my travels around the world I look forward to visiting with and listening to our NCOs and airmen. I find these informal discussions informative and rewarding—in a sense it's how I stay in touch with the real world and what's happening at our bases and to our people.

Over the past year or so, one thing has become very clear to me—we have in Engineering and Services the highest quality, most motivated and dedicated enlisted force we have ever known. From the kitchens to the civil engineering shops, from the fire department to the billeting office, you, the enlisted men and women of Engineering and Services, are doing a superb job.

Your commanders know what you do and how important your job is to the overall mission and are deeply appreciative of what you have done and will do. Your customers also appreciate the service you provide, the pleasant smile and "good morning" across the dining hall serving line, putting the water or electricity back in service at two in the morning, extinguishing the fire in the dormitory or rescuing a crewmember from a disabled aircraft, and the pleasant and helpful reception received from the billeting desk when the family arrives tired and bewildered at a new duty station.

We are a mixed force in Engineering and Services, roughly 50 percent civilian and 50 percent military. In this issue; however, I want to salute and thank you, our enlisted family. You are the backbone of the team; we rely on the airman and Noncommissioned Officer to carry a great portion of the load. We, your leadership, understand this and want you to know that your concerns and problems are our concerns and problems. Whether it's force structure, training, equipment or tools, we are working the issues and want you to know nothing is taken lightly or left unattended.

Again, I salute you, the enlisted force, for what you've done and for what you are about to do. Without you, all our plans and programs, whether for people or facilities, couldn't be carried out—you are the key to the success of Engineering and Services.



**CLIFTON D. WRIGHT, JR.**
**Major General, USAF**
**Director, Engineering and Services**

Recruiting, retaining, training, educating, motivating people our most important resource.

# engineering & services

Air Force
Engineering and Services
Quarterly

AFRP 85-1 Vol 23 No 3

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# HANDS-ON TRAINING

## ...the need has never been greater.

By SMSgt. Art Hanrahan and MSgt. Peter Engles

Because the experience that our personnel gained in Southeast Asia leaves the force as people retire, the need for practical hands-on engineering and services readiness training has never been greater.

The 7002nd Civil Engineering Flight's military cadre at Ramstein AB, Germany, is meeting this challenge. Through the cadre's combined efforts, more than 1,500 engineering and services airmen assigned to U.S. Air Forces in Europe annually receive realistic training on mobile generators, aircraft arresting systems, joint service interior intrusion detection systems (JSIIDS), rapid runway repair, and Prime BEEF/RIBS contingency field operations.

The cadre's initial effort was directed towards the operation, maintenance and repair of mobile generators. These generators, common to USAFE installations, are the life sustaining blood for warfighting facilities in the event of hostilities. Recent Bare Base deployments highlighted the generator's vital mobility role in sustaining base operations. Command power production students receive training on base electricity, circuit indentification, and diagnosing generator failures which are systematically programmed into the course. The hands-on training for "troubleshooting" generator problems is invaluable to the inexperienced power production specialist.

In addition to generator training, the cadre provides instruction to barrier and fire department personnel on aircraft arresting system operation, maintenance, and repair. Student instruction entails the use of mock-ups illustrating key barrier components and problem areas. The high in-commission rate and outstanding barrier performance records attest to the value of hands-on training.

Fire department personnel receive home station barrier training. This training focuses on the operation and daily inspection features of the home station barrier. In addition, USAFE personnel further test their skills by installing expeditionary barrier systems for various Joint Chiefs of Staff and North Atlantic Treaty Organization exercises. These exercises provide the barrier technician valuable experience in expeditionary procedures that is normally unattainable.

From airfields to security, the training continues. Military interior electricians assigned to USAFE normally arrive with little or no experience on alarm systems, especially JSIIDS. The alarm course provides in-depth JSIIDS component analysis

and includes troubleshooting of programmed system failures. Security is a team affair; likewise, USAFE security policemen receive instructional training on all JSIIDS features. Due to the "joint service" aspect, our cousins in the Army and Navy have attended this unique course as well.

In USAFE, learning the "3 Rs" is not just a classroom affair, but taught under realistic conditions. Each rapid runway repair (RRR) class receives three days of intensive classroom and hands-on training for airfield pavement repair. Class size is limited to 30 people to lessen the impact on the base civil engineering work force. This class size also provides a high instructor-to-student ratio, ensuring active student participation. For example, each student cuts airfield pavement reinforcing steel and operates a concrete jackhammer. This may seem basic, but a majority of our airmen have never accomplished these tasks.

The final day culminates in a four-hour RRR exercise on an actual crater. Prior to RRR exercise start, the explosive ordnance disposal (EOD) personnel conduct an exercise that encompasses identifying and removing unexploded ordnance (UXO) from the crater area. Triple R students are not training in UXO disposal; but they do receive UXO identification training and observe the EOD exercise.

Although RRR and force beddown are the primary mission for USAFE engineering and services personnel, USAFE must be ready to respond to all contingencies within the European Command's area of responsibility. As such the 7002nd provides field training for USAFE Prime Beef and PRIME RIBS mobile teams. To date, RIBS training is limited to field kitchen operations. Classes of 10 students receive training for field ration use, menu planning, food preparation, and field kitchen equipment maintenance. In conjunction with the other classes taught by the 7002nd, students prepare the field breakfast and noon meals in the kitchen. This training provides USAFE a cadre of confident and capable services personnel ready to deploy and feed our forces in the field.

To better prepare our Prime BEEF mobile teams, hands-on training was initiated for tasks associated with field deployments. These tasks include erecting hard-back tents, erecting and operating field showers, operating field heating systems, as well as assisting RIBS personnel in erecting field kitchens.

While striving to provide the best hands-on training possible, the 7002nd military instructors gained valuable experience and applied "lessons learned," correcting deficiencies to techniques, materials, equipment, and vehicles. Contacts with other NATO training cadres produced valuable crossfeed of information and ideas, especially for RRR. Through workshops, lesson plan exchanges and communication with the Air Force Engineering and Services Center and the 819th RED HORSE squadron, the 7002 CEF ensured realistic, up-to-date training.

USAFE in-theater training is based on hands-on training, troubleshooting techniques, a high instructor-to-student ratio, and maximum student participation. "Learning by doing" is the key to rapid growth of basic technical skills. The need has never been greater. E&S

*SMSgt. Art Hanrahan is the commandant of the U.S. Air Forces in Europe Engineering and Services Readiness Training Center, 7002nd Civil Engineering Flight, Ramstein AB, West Germany. He has been in readiness training for 10 years. The 1980 recipient of the Goddard Award, he is a chief master sergeant selectee.*

***MSgt. Peter Engels** is presently with the 3rd Mobility Squadron, Tinker AFB, Okla. At the time of co-authoring the article, Sergeant Engles was the power production superintendent of the 7002nd CEF. He earned his associate of applied science degree in electrical power systems from the Community College of the Air Force.*

# PRIME BEEF TRAINING UPDATE

**by Maj. S. Brian McCluskey**

The Prime BEEF concept provides skilled, equipped and mobile teams capable of supporting the Air Force mission in any theatre of operation. The success of the concept lies in the abilities of base personnel to quickly convert from their peacetime activities to their wartime duties of providing and maintaining a flying base for the Air Force weapons systems. A quick conversion can't be made without scheduled training to ensure proficiency in those wartime skills.

AFR 93-3 outlines the annual training that Prime BEEF members must undertake. Contingency Force (CF) teams established to carry out specific duties must be trained to meet the requirements of the war zone. CF-1 (Base Recovery and Operations Equipment Teams), CF-2 (...Operations Support Teams), and CF-3 (...Operations Augmentation Teams) require unit level training and some specialized training away from their home bases. Unit level training provides specific knowledge in Rapid Runway Repair, weapons handling, and home station skills. The home station's training program provides instruction in:

- Military sanitation
- Vehicle operation
- Expedient repair methods
- Explosive ordnance reconnaissance (EOR)
- Chemical warfare (CW) defense, and
- Field training.

These subjects provide the basic knowledge and skills required to survive and work on an airfield in a war zone.

Home station training is a challenge to the civil engineering community. It means shifting gears from normal peacetime operations and taking the time and effort to upgrade essential combat-related skills. To assist the local training effort, and to promulgate a high degree of standardization, the Air Force Engineering and Services Center's Readiness Directorate has developed instructional packages to support the home station training programs. These audio-visual materials are outlined in the Prime BEEF manager's handbook. Included are sound-on-slide training packages covering key elements of the required home station curriculum.

If you have the manager's handbook, the sound-on-slide training packages list should be updated to include the revised catalogue numbers and the latest titles (See Figure 1).

Your Base Audio Visual Library can obtain these packages from the Defense Audio Visual Agency, Norton AFB, Calif., for use in the home station training program. By late 1982, **600331DF MOS Selection - Part I, Introduction to Minimum Operating Strip Selection Procedures** should be ready for distribution. Contractors are now producing two further packages that should be ready for distribution by the spring of 1983. They are:

**53361 DF-2 • MOS Selection - Part II (Procedures Instruction)**

**600014 DF-2 • Load Planning CF-2 Team Tool Kit**

For CF-4 (Command Staff), CF-5 and -6 (Crash Rescue and Fire Suppression) teams, the peacetime and wartime duties are nearly the same. Their contingency training relates more to personal protection in the war zone environment. These teams undergo the same home station training as the CF-1 -2 and -3 teams, excluding expedient methods and field training. Rapid Runway Repair training is also not required. The CF-5 and -6 must maintain their trade proficiency through field training on all items listed in AFR 92-1 Table 3-1. For installations which do not have aircraft, fire crash vehicles, training pit areas, these requirements may be satisfied by other documented means as determined by the MAJCOMs.

When it is not possible to conduct the training at the home station level, HQ AFESC arranges for specialized training to be conducted elsewhere. HQ AFESC conducts an introductory course in the safe handling of explosives for constructive and destructive purposes. This one-week course is held approximately 15 times annually at Tyndall AFB, Fla. The center also gives Rapid Runway Repair training experience at its Prime BEEF site at Eglin AFB. During five-day deployments, CONUS teams put into practice the theory learned during home station training.

Increases are being made in the Prime BEEF training site known as Field 4 at Eglin AFB, Fla. The two training cadres could not train CONUS teams to meet the frequency stated in AFR 93-3 requiring training every two years for active force teams, every three years for reserve forces teams. By increasing the staff through manpower authorizations borrowed from the MAJCOMs, by reassigning surplus heavy construction equipment, and by constructing a 100-man theatre and an office building, Field 4 will be capable of receiving three teams per week and satisfying the frequency stated in AFR 93-3. This increase in capability began in October.

Instruction on Rapid Runway Repair and a review of the subjects covered in the home station training program will continue as the core of the Field 4 training. This does not mean the curriculum will remain unchanged. As procedures are developed or revised, and new equipment is acquired, they will be introduced into the training site program. Some recent changes have been:

- Withdrawal of the Harvest BARE equipment since training is now conducted by the 4449th MOBSS at Holloman AFB, N.M.
- Introduction of the Reverse Osmosis Water Purification Unit (ROWPU) to provide training on potable water production from saline sources. Training on the Erdlator will continue as this kit will remain in the inventory for another five years.

Figure 1

| CATALOGUE NUMBER AND TITLE |
|---|
| 53223 ST 35-I • PRIME BEEF Orientation |
| 53084 ST 35-I • War Reserve Materials |
| 50586 ST 35-I • Tent Erection/GP Med Size |
| 52624 ST 35-I • Hardback Const. (16 x 32) |
| 53214 ST 35-I • Hardback Const. (18 x 52) |
| 53222 ST 35-I • Bomb Damage Repair |
| 53239 ST 35-I • Explosive Ordnance Recon. |
| 53002 ST 35-I • Assembly of AM-2 Matting Patch |
| 51362 ST 35-K • How to Recognize, Mark and Report Unexploded Ordnance (UXOs) |
| 05222 ST 35-I • Rapid Runway Repair |

•Construction of a command post bunker. It is equipped to provide the Prime BEEF team leaders with appropriate facilities from which they can direct Rapid Runway Repair and Bomb Damage Repair.

•Resurfacing of previously blown craters with a sand-cement mix. This surface will produce larger pieces of debris when the runways are recratered. The concrete ejecta will provide a greater challenge to the equipment operators during the RRR exercises.

•Introduction of the crushed stone repair techniques as outlined in the RRR Interim Guidance of December 1981. This material along with the use of the Fiberglass Reinforced Polyester (FRP) FOD cover will provide experience in the procedures for a small crater repair. Each team will also have the opportunity to do spall repairs using ***SILIKAL*** quick-set cement.

Prime BEEF teams in war time will be working as part of a larger support organization dedicated to the maintenance of the air operations. Similarly the center encourages integrating training of other support functions into the curriculum at Field 4. Elsewhere in this issue, a companion article will outline the training Prime RIBS (Services) teams receive while the Prime BEEF teams are conducting RRR training. The training site provides a unique opportunity for the Prime RIBS teams to experience "theatre" conditions while providing actual support to the Field 4 operations.

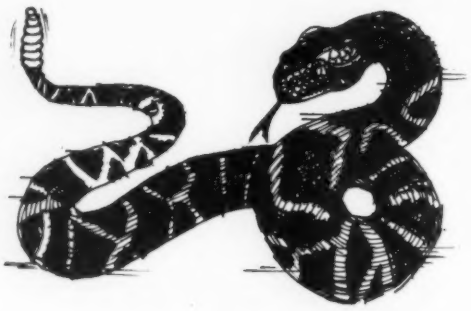
Since Jaunary, 1980, AFESC has sent out a Mobile Travel Team (MTT) to augment home station training for those Prime BEEF teams who could not deploy to Field 4 as stipulated in AFR 93-3. With the expansion of the Field 4 facilities, and the increasing number of subjects covered on sound-on-slide packages, the need for the MTT has diminished. The team was deactivated Sept. 30, 1982. In approximately 2.5 years the team members visited 116 units providing instruction in home station training subjects to 8,912 Prime BEEF personnel.

What is in the near future for Prime BEEF training? Here in the center, we visualize a continuation in current course subjects, with some change in the emphasis. As Damage Assessment, Rapid Runway and Bomb Damage Repair procedures change, the training material will change. The introduction of new equipment such as the excavator (for Rapid Runway Repairs) will bring changes in the curriculum. As instructional material and equipment becomes available there will be more emphasis placed on command/control/communications, chemical warfare defense, explosive ordnance reconnaissance/disposal, and work party security. The emphasis will be reflected in both the home station training and in the Field 4 deployments.

The center will continue to provide sound-on-slide instructional packages, and update current material as the requirements are identified. The success of the Prime BEEF training program is dependent upon its ability to satisfy known requirements. New procedures are incorporated into the program as they are approved here in the Center. But current subject material doesn't guarantee a successful training program unless the material is well received. A successful Prime BEEF program requires feedback from the teams. If you are a Prime BEEF manager, you may have ideas on modifying the home station training program to better meet the needs of your wing commander. If so, these ideas may be useful to other managers. Let HQ AFESC/DEOT know of your ideas and suggestions, so the Center can continue to improve the training program to meet your needs.

E&S

*Maj. S. Brian McCluskey is a Canadian Forces military engineer on exchange duty with HQ AFESC as the Prime BEEF contingency training officer. He is a graduate of St. Mary's University, Halifax, Nova Scotia, with a bachelor of science degree in Mathematics. He has served tours of duty with CE sections at Cold Lake, Alberta, and Puntzi Mountain, British Columbia; on the Canadian Forces equivalent to MAJCOM/DE staff with Material Command; and in National Defense headquarters, Ottawa in maintenance policy and field unit coordination. He served tours of duty at the Canadian Forces European bases in Lahr and Baden Soellingen, Germany. He was also employed as contingent technical services officer with the United Nations Emergency Force at Ismailia, Egypt. Major McCluskey is a graduate of the Canadian Forces Command and Staff College. Prior to his posting to AFESC, Major McCluskey was the base construction engineer officer at CFB Kingston, Ontario.*



## TRIPLE "R" TRAINING AID ENSURES GOOD EATING

**by Sgt. Lea Blake**
**Associate Editor**

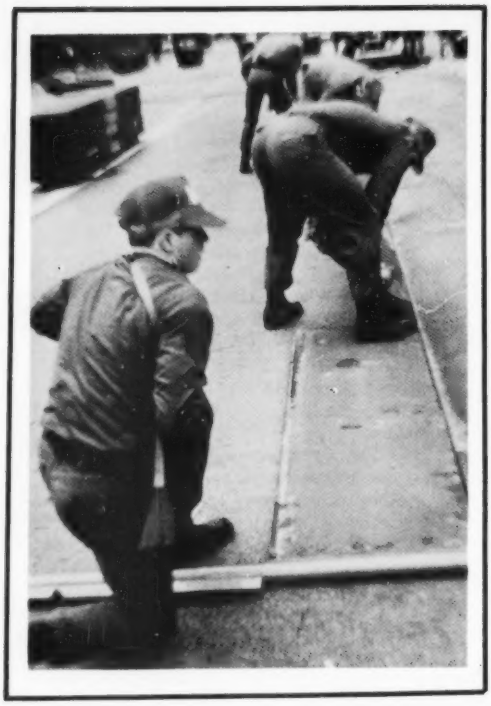
As the 91-man Prime BEEF deployment team from George AFB, Calif., prepared ground to repair a gaping 35- x 15-foot crater in the abandoned World War II runway, "supper" casually began to cross the runway.

While filling the hole, team members found — and of course killed — a five-foot, two-inch Diamondback rattler. CMSgt. Harlen Catlett, training site supervisor, proudly dubbed the fellow, "a training aid," and sent it back to the field kitchens where team cooks prepared the tasty morsel for that evening's meal. Better than "A" rations (better known as frozen), you say?

For the outdoorsman (or woman), this is the life—eating and sleeping under the canvas. This particular team is one of about 116 teams from CONUS bases who travel annually to Eglin AFB, Fla. During their five-day stay at the Prime BEEF training site, they learn the finer aspects of supporting wartime airfield operations. This is all done while under field conditions. Once the team arrives on site, they remain until training is finished and it's time to return to their home base.

Located deep in the woods, the site is actually an abandoned World War II airfield. It is known as Auxiliary Field 4, and is on the Eglin AFB training range. Here, teams recap home station training in the classroom. This is 25 percent of the curriculum. The remaining 75 percent of training is hands-on and outdoors. Team members are also trained to make the transition from a peacetime environment to wartime in which they may have to augment non-civil engineering and services positions such as security police and primary command post positions. (For a detailed curriculum and further information on the site, see "Prime BEEF training Update," and "Prime RIBS: Wartime Readiness" both in this issue.)

From the human standpoint, the site is definitely "in the boonies" and far from civilization. So, if you're into the outdoors, love to camp and find excitement in meeting nature's creatures head-on, "Triple R" training at Eglin AFB is your ticket. (By-the-way, snakes aren't the only "critters" in Florida.)



# RAMSTEIN'S "TRIPLE R" BEST IN USAFE

**by TSgt. D. P. Jenkins**
**86th TFW/PAM, Ramstein AB, Germany**

As a gun shot sounded the beginning of the competition, nine neat rows of triple "R" experts dissolved into a whirl of green. With all the precision of a finely tuned drill team, each group went to work dispersing the 15 tons of matting stacked in neat rows before them.

It was the first-ever "Triple R" Olympics held. The match took place at Ramstein AF, Germany. Members of Ramstein's Rapid Runway Repair team proved, in just 18 minutes and 20 seconds, that they were the best the United States Air Forces in Europe (USAFE) had to offer.

The 16-man, 85th Civil Engineering Squadron team covered a 74-by-54-foot simulated runway crater with 140 slabs of aluminum matting. The mats weighed 140-180 pounds each. It was the best showing of any of the nine teams on hand for the olympics in early March of this year.

Teams from Ramstein, Sembach, Hahn, Zweibruecken, Spangdahlem, Bitburg and Rhein-Main, West Germany; Aviano, Italy; and RAF Bentwaters in the United Kingdom, converged on Ramstein to determine which RRR team in Europe could do its job the quickest and best.

Organized by the 7002nd Civil Engineering Flight at Ramstein, and conducted under the watchful eye of "Triple R" experts from the 7002nd and the 819th CES, RAF Wethersfield, the USAFE RRR Olympics was designed to enhance morale and enthusiasm among participating team members, according to SMSgt. Arthur J. Hanrahan of the 7002nd.

Sergeant Hanrahan credited all teams for their fine showing and displays of camaraderie and devotion to teamwork.

Ramstein's time of 18:20 was enough to make everyone take notice. A team member from second-place Spangdahlem was heard to remark, "These guys really have their stuff together!"

Finishing their task in 20:10, Spangdahlem was followed by Sembach with 21:30. Hahn, Zweibrucken, Aviano, Bentwaters, Bitburg and Rhein-Main completed the standings.

USAFE's Vice Commander-in-Chief, Lt. Gen. Robert W. Bazley, commented that each team was a winner. General Bazley said, "And while Ramstein won by 1:50 over Spangdahlem, every team can walk away from this competition with heads high. Your times are well within NATO minimum and better than we ever expected."

And so, the birth of a new competition/exercise was born within the Engineering and Services community.

## Preparing reserve contingency force teams

# 39 DAYS A YEAR

*Col. James Penn is director of services and reserve resources, DCS/Engineering and Services, AFRES. An aeronautical engineer, he is a graduate of the University of Minnesota. He holds the master's degree in Urban Planning from Mankata State University in Minnesota. He is the author of "On the AFRES Menu: PRIME RIBS," which appeared in the summer of 1981 in the* ***Quarterly.***

**by Col. J. P. Penn**

How do you prepare a reservist for the Prime BEEF and Prime RIBS mission with only 39 days a year? Not an easy task, but it is being done.

Three specialized Air Force programs are preparing reserve contingency force teams to carry out their mission as full partners in the total force. First of all, the Air Reserve Forces are made up of the Air Force Reserve and Air National Guard. They provide more than 40 percent of our civil engineering and 50 percent of our services forces—a significant part of the collective Air Force response capabilities.

Before talking programs, let's check the origin of those 39 days.

When reservists raise their right hand, they make a commitment to the Air Force and their unit. They must spend one weekend a month (24 days per year) training at the home station and an additional 15 days of active duty training. The monthly unit training assembly (UTA) is the source of the outdated term "weekend warrior."

In that abbreviated training time, the reservists are expected to sharpen their individual skills and proficiency while working as productive members of the team. They must also complete all medical, administrative and personnel requirements at the same time. They don't have the advantages of everyday service that those of us on active duty have for the hospital, Consolidated Base Personnel Office, Accounting and Finance, etc.

That's where the specialized programs come in. They are:

(1) AFESC-directed annual tour deployment, including

(2) Triennial Rapid Runway Repair (RRR) training at Eglin AFB; and

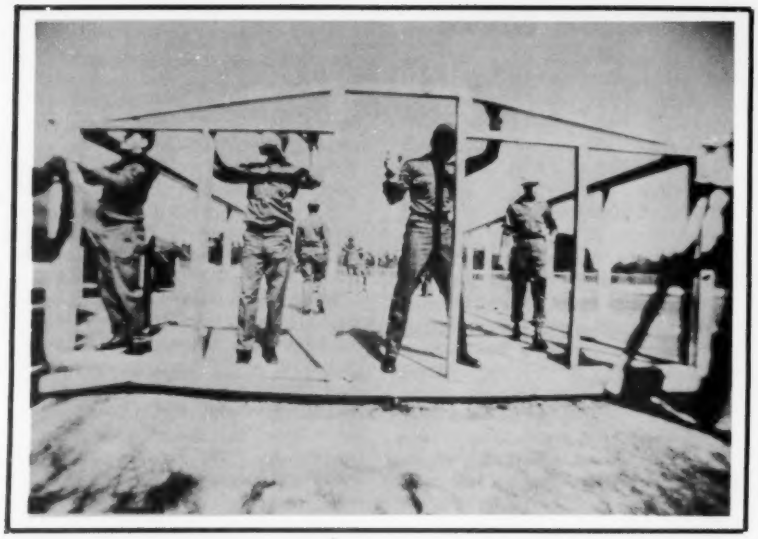
(3) Home station training programs.

Each year the center sends a call to all active duty MAJCOMs to identify minor construction or maintenance and repair projects in their programs which require a cross-section of skills that would be useful as reserve training exercises. Bases submit projects to their MAJCOMs for validation and forwarding to AFESC. Representatives of the Air Force Reserve and Air National Guard meet with members of the AFESC Readiness Directorate (DEO) to match projects with identified training needs.

Reserve forces teams are assigned to projects and from that point on its up to the reserve forces commander and the active duty Base Civil Engineer to work out the details of the deployment. The byproduct of a successful deployment is a completed project—with the troop labor as an unfunded cost. Active force "attaboys" flowing to the Reserve and Guard headquarters attest to the high skill levels and enthusiasm of the deployed teams.

Based on the designed operational capabilities of the deployed teams, missions include construction of pre-engineered buildings, renovations, road building, augmenting the BCE shops, operating fire departments, as well as managing dining hall and billeting operations.

Every third year, a proportionate number of the reserve forces CF-1 and CF-2 teams spend five days of their annual training tour at Eglin AFB, Fla., participating in the AFESC RRR exercise where they sharpen teamwork skills and study the latest Air



Force approach to runway repair and expedient facility repair. Reserve RIBS team members are simultaneously learning field feeding techniques at the Eglin canvas "kitchens" while "practicing" on their squadrons.

Reserve commanders continue to report that the Eglin exercise is the single most valuable and meaningful training in which their teams have the opportunity to participate.

The monthly UTA is also tied to the mission. Although time is limited by typical squadron administrative and military duties, the Air Force has provided reserve units with RRR minikits, manuals on expedient repair, training packages on field feeding, and film strips – all of which have become an integral part of the weekend. These training aids act as a constant reminder of the Prime BEEF and Prime RIBS missions. The reservist is constantly reminded that his job is to get ready and stay ready.

Because monthly training, annual deployments, and the Eglin RRR exercise are all tied together in training reservists, the Air Reserve Forces "warriors" aren't just for weekends anymore!

E&S

# PRIME RIBS
# WARTIME READINESS

by Lt. Col. Willis O. Pickering, Jr.

Services "readiness" means being able to perform the mission of providing food service, billeting, mortuary affairs and laundry services during wartime, at overseas deployment locations.

Services personnel are organized on a team concept for deployment. There are six types of teams, each designed to support a certain base population each called Prime RIBS. The word "Prime" denotes an elite group of services personnel, and "RIBS" is an acronymn meaning "Readiness in Base Services." The teams may be used for a bare base location, to open up "mothballed" installations, or to augment existing services squadrons/units overseas.

Training and orientation of Prime RIBS forces are critical elements of success. The reasons are the complexity of the mission, the variety of supporting equipment, and the many different levels of support which Prime RIBS may be required to provide. Because Prime RIBS is more recent that Prime BEEF, the concepts are not as widely known among the operational forces which we support. Let's address the Prime RIBS mission, equipment, training and trends.

Combined in different configurations as necessary to support any size population, their use can be adjusted to perform specific tasks, augment existing organizations, or form a total base services organization. Team compositions are in Figure 1.

In contingency or exercise operations, Prime RIBS duties take precedence over peacetime, additional or augmentation duties. Prime RIBS team members are used for rapid or short-notice deployments. Therefore, they should not be tasked to augment other wartime functions.

Prime RIBS members are an integral part of the peacetime services operations work force on an installation, and may be deployed during peacetime for: JCS- or HQ USAF-directed exercises, unit training, disaster recovery or emergency assistance, and MAJCOM-directed exercises.

During wartime, teams are deployed as directed by war plans or by AFESC. The teams may either retain team integrity when deployed, or may be integrated into base services operations at their deployed location. They may also be attached to the augmented unit as a separate work element, if directed by the gaining MAJCOM. Gaining commands may also redeploy Prime RIBS forces.

Types of bases that Prime RIBS teams deploy to are:

**Bare Base (BB):** Runway, taxiways, parking areas adequate for the deployed force, and water that can be made potable are available.

**Collocated Operating Base (COB):** An active allied base that can be used to bed down augmenting forces, reducing overcrowding of U.S. Air Force air bases by augmentation forces. COBs require support to accommodate reception beddown, launch, and the COB flying unit resupply. A COB may be a main, standby, or limited base.

**Limited Base (LB):** An austerely staffed air base with no permanently assigned tactical forces, but which may have small forces for special operations (weather, surveillance, alert aircraft, special-purpose aircraft, etc). These bases can receive deployed forces, but require services forces to support operations.

**Main Operating Base (MOB):** All essential buildings and facilities and an in-place services force that may require augmentation to support expanded operations.

**Standby Base (SB):** An austere airfield base in caretaker status, large enough for an operational wing, generally having the same facilities as a limited base. Services personnel will reopen closed facilities and provide service operations capability.

### The Packages

Services units use several types of prepackaged equipment to perform their wartime mission. This equipment is War Reserve Material (WRM) and is prepositioned at controlled CONUS and overseas locations for deployment to the area of conflict when needed. There are three general categories of equipment used for Prime RIBS teams where no permanent facilities exist: Harvest BARE, the Mobile Kitchen Trailer and Harvest EAGLE. Included with the Harvest EAGLE and BARE packages are field laundry units and field mortuary equipment.

Harvest BARE is the "Cadillac" of the bare base packages. It is air transportable in the C-130, C-141, or C-5 aircraft. The system is composed of a Base Augmentation Support Set (BASS) which provides base operating and housekeeping support, and a Maintenance Operations Support Set (MOSS) which provides maintenance and operations capability to support the weapons systems. The services equipment is only one part of the BASS. Each complete Harvest BARE package supports up to 4,500 people and has nine kitchens. Harvest BARE kitchens and dining rooms are air conditioned. The semi-permanent structures have hard floors, and are heavier and bulkier than Harvest EAGLE equipment. Technicians from the 4449th Mobility Support Squadron at Holloman

## RIBS TEAM COMPOSITION

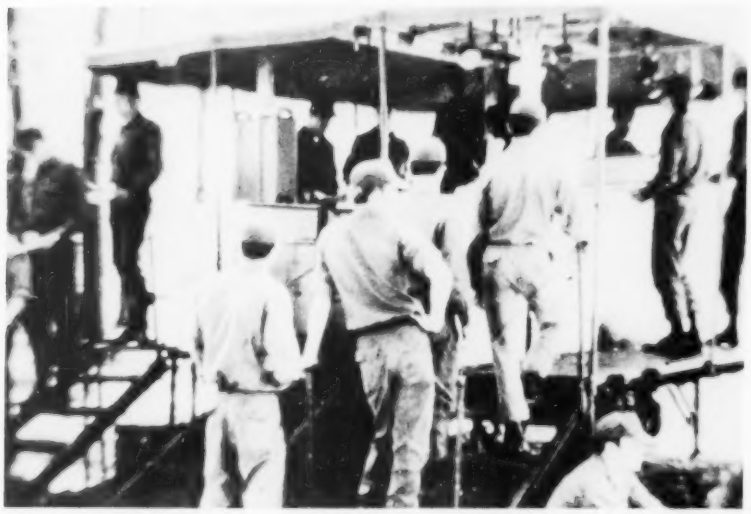
Figure 1

| Team 4F9- | Strength/Purpose | To Support |
|---|---|---|
| RA | 39 members, initial support team use at COB, LB, BB, SB | 400 |
| RB | 22 members, augmentation team use at LB, BB, SB, COB | 400 increments |
| RC | 9 members, augmentation team use at MOB, BB, LB, SB, COB | 450 increments |
| RD | 18 members, supervisory augmentation use only at MOB | 900 increment |
| RF | 18 members, initial support team use at COB, LB, BB, SB | 250 |
| RG | 4 members, augmentation team use at MOB, BB, LB, SB, COB | 50 increments |

deploy with the Harvest BARE BASS or MOSS and provide necessary technical assistance in erection of shelters and kitchens.

The Harvest BARE kitchen equipment is very sophisticated and resembles a small, permanent base dining facility, complete with grill, convection oven, dishwasher, etc. The equipment is steam operated, and either "A" (fresh or frozen), "B" (dehydrated) or "T" (precooked, canned) rations can be prepared.

Mobile Kitchens (MKT-75) are field range operated kitchens, each feeding up to 250 personnel, mounted in 10' x 8' trailers pulled behind a 2.5-ton truck. The units are similar to a "pop-up" camping trailer. The mobile kitchen does not have refrigeration. It is for preparation of T-rations or B-rations (dehydrated items). It can be used to prepare A-rations when refrigerated storage is available. The $17,000 kitchens are authorized in TA 429, Part F, and Part L, TA 929, and will



be authorized in a new TA 157 which concerns Harvest BARE and EAGLE assets.

Field laundry units to be used by Prime RIBS teams are newly designed washer, extractor, and dryer units mounted on pallets compatible with the 463L aircraft pallet system. The units contain a remotely located diesel generator for power and have hot water wash capabilities. Existing trailer-mounted laundry units are being refurbished by Natick Laboratories to conform to the new design.

Mortuary kits are included in the Harvest EAGLE and Harvest BARE BASS subset. Human remains refrigerators, shipping pouches and preparation/collection tents are included in the kits. Deploying RIBS teams will take search and recovery supplies with them when they deploy.

Harvest EAGLE structures are almost all canvas tents, and provide for austere "field conditions" support of personnel. Each set currently contains 4 kitchens and can support up to 1,100 personnel with all types of rations. (A newer version of the EAGLE uses only one kitchen per 1100 personnel.) This system is lighter, easier to erect and requires less site preparation than the Harvest BARE. The kitchens use gas-fueled burner units and field ranges, and come with portable walk-in refrigerators/freezers. The heart of the present Harvest EAGLE kitchen is the field range, M-2 burner unit, and immersion heater with GI can for cleaning dishes and utensils. The dining room is a standard general purpose or "TEMPER" tent, however, the kitchen tent is specially designed.

All Prime RIBS units deploy with sufficient personal items (clothing, toiletries, etc.) to last for at least 30 days. Some deploying units take sufficient individual food packets to last the first five days until the kitchens are operational. Others use prepositioned rations.

Billeting in the Harvest EAGLE set is provided by tents and cots. Space heating is available. Harvest BARE billeting is provided by an expandable personnel shelter and cots, having externally mounted forced air heating and air conditioning.

Field laundry and linen exchange services in both Harvest EAGLE and BARE systems are similar. The non-reimbursable laundry service provided to base military under field conditions is rough dry service—clothing cleaned and dried, but not pressed, packaged, starched, or resized.

Food service provided by Prime RIBS teams in deployments consists of Meals, Ready-to-Eat (MREs) for the first 10 days or until kitchen units are operational. From that time up until the end of the first 90 days, one MRE and two hot B-ration meals per person will be served daily. Four meals per 24 hours will be served, but only a single entree selection will normally be offered at each meal. After the first 90 days RIBS teams will be preparing A-rations (if available) or B-rations throughout the remainder of the deployment. Mess kits will be used for dining utensils.

Mortuary Affairs services provided by Prime RIBs teams include: search and recovery of human remains, identification, preparation of remains for shipment, temporary interment, and graves registration duties as required by governing NATO agreements. In the Middle East and in Europe, remains will be shipped to joint central graves registration collection points or mortuaries as designated by the U.S. Army-operated joint graves registration area office.

### BX-in-a-Box

Base Exchange support at a bare base is provided through a "tactical field exchange" operation, a temporary activity designed to support military exercises and real world contingency operations. Commissary personnel (AFSC 612XX) operate the exchange operation. With Harvest EAGLE facilities, tents are used for the retail outlet and a warehouse. With Harvest BARE facilities, an expandable shelter-container is used for the retail sales outlet, and a general purpose shelter is used for a backup warehouse and office.

The Army and Air Force Exchange Service (AAFES) has developed a self-contained field exchange commonly referred to as a "BX-in-a-Box." AAFES has defined a listing and quantities of retail merchandise items which may be stocked in these exchanges, and merchandise has been selected to include all essential personal convenience items. These items are readily available in the regular operating stocks of established exchange operations that support the field exchanges.

### Training

Training for Prime RIBS teams includes both home station and formal training. Home station training includes: annual field and food handler sanitation training conducted by base medical personnel; survival training in a nuclear, biological, chemical environment, conducted annually by base disaster preparedness personnel; government vehicle operations training for

30 percent of 622XX and 611XX personnel, annual field training on field food service equipment; mortuary affairs search and recovery training; and annual small arms weapons qualification.

Prime RIBS members undergo periodic AFESC-sponsored mobility formal training once every 24 months (no more frequently than 18 months and no less than 36 months) living and working under actual field conditions at Eglin AFB, Holloman AFB, or Ramstein AB. Included are preparation of B-rations, field laundry operations, field billeting procedures, and mortuary affairs services including collection, storage, shipment, and record keeping for remains.

Each base services chief is responsible for carrying out the base Prime RIBS program. A qualified 62XX services officer and a senior (622X0 or 611X0) NCO are appointed as Prime RIBS manager and NCO. These personnel are responsible for the scheduling of formal training, actual "hands-on" training, assignment of services personnel to RIBS teams, and reporting on RIBS team status. A Prime RIBS team is mobilized according to each base mobility plan within a maximum planned mobilization response time of 28 hours from notification. This includes a 24-hour alert plus four hours for deployment. When an alert notification of a deployment is received, services officers verify the deployment requirements with the wing or base mobility officer. Prime RIBS teams are assembled, and personnel and equipment requirements filled to the maximum. The current unit mobility status is confirmed based on the number of available personnel, and the current logistical, and training capabilities. Actual mobility processing must be completed to meet the Mobility Control Center's schedule. All limiting factors are identified to MAJCOM/DEHS before processing deployment.

Current efforts in the Prime RIBS area include preparation of several publications for training purposes, simplified accountability procedures for deployment, reporting of Prime RIBS team status, and a program to convert some food service contract operations back to military operations.

A new Air Force pamphlet, AFP 140-3, entitled "The Prime RIBS Manager's Handbook" has been prepared and should be published in mid-FY83. The pamphlet gives specific instructions on setting up a base Prime RIBS program, administrative and record keeping requirements, lesson plans for home station training, sources for training materials, and detailed descriptions of how Prime RIBS personnel will perform their wartime duties. The pamphlet complements AFR 140-3.

Another soon to be published pamphlet, AFP 146-1, is entitled "Food Service Field Feeding Handbook." This pamphlet covers food issue, storage and preparation, equipment use, site selection, field sanitation and other skills needed to operate food service facilities under field conditions.

The portion of AFR 28-4, USAF Mobility Planning, MOP Number 17, which deals with issuing subsistence for flight feeding has been revised. MOP 17 will now include simplified accounting and meal signature procedures and will include new procedures for deployment destination feeding. A new portion of the regulation will include instructions for deployment of Prime RIBS teams.

### C-Ratings

For the first time, the readiness of postured Prime RIBS teams will be included under the UNITREP program, AFR 55-15, when it is republished in FY83. The UNITREP system assigns a readiness rating called a "C-rating" to base mobility teams. Prime RIBS teams will be measured by their percentages of assigned personnel, critical AFSCs filled, annual home station and formal training completed, and availability of mobility bags. This program will have a significant impact on the visibility and recognition of the importance of Prime RIBS teams throughout the Air Force.

### New Start

Early in FY81, services contingency planners recognized that there were not enough military services personnel to posture all the Prime RIBs teams required for wartime. An AFESC effort to correct this shortfall by converting food service contract operations to military operations at 29 bases was initiated, and was labeled "New Start." This proposal was subsequently approved in FY82 and will be carried out in FY84 thru 86. Although this conversion will obtain over 1,300 additional military food service authorizations, there will still be a significant shortfall of personnel needed for Prime RIBS teams.

### T-Rations

One item which holds promise for reducing this short-fall even more, however, is the use of the tray pack, or "T-Ration" when it becomes readily available, hopefully in FY86. The T-Ration is a cooked, non-perishable product, packaged in a steam table insert type of metal container, which only requires heating. Use of this ration in prepositioned WRM subsistence stocks may reduce wartime food service manpower requirements as much as 30-60 percent. Validation of these estimated manpower reductions is planned for accomplishment at the Eglin AFB field training site in FY83. Even if the T-Ration lives up to expectations there will still be a wartime manpower shortfall in the services area.

Other current efforts in the Prime RIBS area are being directed toward identifying WRM equipment shortfalls for services functions, and development of levels of service and manpower requirements for CONUS services operations in wartime.

*Lt. Col. Willis O. Pickering, Jr. is the Services contingency planner for the Readiness directorate, HQ AFESC, Tyndall AFB, Fla., responsible for Prime RIBS. He was previously commander of the 831st Services Sq. and chief of services at George AFB, Calif.*

# worth noting

## ENGINEERING, SCIENTIFIC BONUS PROGRAM BEGINS

RANDOLPH AFB, Texas — Qualified engineering and scientific officers may now get up to $12,000 bonus for extending their service commitment up to four years, Air Force Manpower and Personnel officials have announced.

Engineering and scientific continuation pay bonus periods range from one to four years. Qualified officers electing to remain in the Air Force the maximum period for which they are eligible will get a bonus of $3,000 per year. Officers eligible for a four-year agreement may select a three-year optional agreement at $2,500 per year. Those eligible for a shorter period won't have the option of selecting a period less than the one for which they are eligible.

To qualify, officers must be on active duty in a grade below colonel; be in, or selected to serve in, a critical shortage engineering or scientific duty position; and possess a shortage academic degree. Officers must have completed at least three years of scientific or engineering duty, and four to 12 years total active federal commissioned service.

Shortage degrees qualifying for the bonus through Dec. 31, 1982, include electrical engineering, electronics engineering technology, electrical technology, mechanical engineering, astronautical engineering, aerospace engineering, aeronautical engineering, architecture, and architectural engineering.

Specialty codes considered under the program include 26XX, scientific officer; 27XX, acquisition program management; 28XX, development engineer; 29XX, program management; 301X, communications-electronics staff officer; 305X, communications electronics engineer; 309X, communications-electronics director; 51XX, computer systems; 55XX, civil engineer; and 91XX, biomedical sciences.

Officers in specialties 0940, instructor, and 75XX, education and training, who meet the degree requirements may be eligible to receive the bonus.

Those eligible, or those who think they may be eligible, should check with their local personnel office for further details.

## WPAFB ANNUAL FIRE EXPO SCORES AGAIN

Nearly 30,000 residents of Ohio's Miami Valley attended the annual Fire EXPO at Wright-Patterson AFB, staged by the fire fighters of the 2750th Air Base Wing in cooperation with area community fire fighting organizations.

The ***Air Force Band of Flight*** and ***Silver Wings Express*** provided music. The Springfield, Ohio, rifle team demonstrated marching and musketry featuring antique uniforms and weapons. There were 67 booth exhibitors and 14 manufacturers representing organizations and firms nationwide.

Clowns Ronald McDonald and Mr. Pepperoni entertained kids. Among the biggest entertainments were firehose fights and high-reach ladder lifts. (Charles Brydia, 2750th ABW/PA)

**A waterball team from WPAFB, including Col. Leonard R. Peterson, base commander, once again water logged a group of challengers from Dayton's area news media. This was one of the highlights of Fire EXPO '82 staged by the Fire Protection branch of the 2750th Civil Engineering Squadron. (Photo by Charles F. Brydia)**

## CEMIRT EFFORTS PAY OFF

The continuing effort by the Civil Engineering Maintenance, Inspection and Repair Team (CEMIRT) to improve efficiency of Heating, Ventilating and Air Conditioning (HVAC) systems is bearing fruit, according to Lee D. Browning, AFESC/DEMC, Tyndall AFB, Fla.

The repair, adjustment and calibration of HVAC systems in a total of 55 buildings at five bases resulted in a yearly cost avoidance of $367,449. If the systems are maintained to operate efficiently, he said, the savings will be recurring.

Browning concluded with, "This is only a sample of what was achieved by one CEMIRT region with five HVAC people. It provides some insight toward the potential savings if all HVAC systems throughout the Air Force were calibrated and maintained to operate efficiently."

## SPACECOM LISTS E&S ADDRESS

The Space Command was activated as a U.S. Air Force major command on September 1. Along with the new command, come support offices and branches. The functional address for Engineering and Services DCS is SPACECOM/DE, Peterson AFB, Colo., 80914, AUTOVON 692-3546.

**Second Lt. Mark E. Miller was named the Outstanding Cadet in Civil Engineering for the Class of 1982 at the Air Force Academy in Colorado. Lieutenant Miller was assigned to Cadet Squadron 19 and majored in civil engineering. He was selected from more than 40 other civil engineering majors. The Civil Engineering Award is sponsored by the Civil Engineering Officers of the Air Force in memory of First Lt. George W. Kamenicky, Class of 1969. The award presentation was made by Brig. Gen. Charles Lamb, deputy program manager for facilities development for the M-X program and commander of the Air Force Regional Civil Engineer's office dedicated to that program. (U.S. Air Force photo)**

## EFFICIENCY REVIEW PROGRAM

The Office of the Secretary of Defense has directed the Air Force and other services to establish a formal system to conduct efficiency reviews on all in-house activities over the next six years. In addition, OSD has reduced the Air Force civilian end strength by nearly 4,000 spaces over the Five Year Defense Plan (FYDP) period. This is based on savings they project will come from the reviews.

An inherent part of the efficiency review process is the development of Performance Work Statements (PWS) to cover all Engineering and Services functions. A PWS describes the desired results of a service rather than the methods used to achieve those results. The key elements of the PWS encompass:

- A measurable performance standard of that service (i.e., how fast, how many, how often, etc.).
- A quality assurance plan for managers to gauge performance of the function.

The PWS for E&S will be developed by our own functional experts with assistance from the Air Force Engineering and Services Management Evaluation Team and/or the appropriate major command manpower office. In fact, this tool will be incorporated into the development of all new or revised Air Force manpower standards.

Do not confuse the efficiency review process with the Air Force contracting out program, which also uses the PWS as a basis for conducting A-76 cost comparison studies. The intent of the efficiency review process is to increase productivity and reduce in-house operating costs by eliminating unnecessary work practices without the threat of contracting out. It is also designed to encourage managers to use their ingenuity and allow more flexibility to accomplish the mission.

The important role of E&S people in all aspects of this undertaking cannot be overemphasized. If we work this initiative carefully with our manpower counterparts, we can ensure that efficiency reviews will ultimately enhance our wartime capability. To do otherwise, we could be forced to live with arbitrary civilian reduction – we cannot let this happen. Your personal involvement in this important Air Force initiative is critical to its success. (AF/LEEPP, Ms. Mary Jane Magenta, AUTOVON 225-1003)

## EXAM IS PASSED BY THE EXAMINERS

KELLY AFB, Texas – The Special Examining Unit of the Air Force Commissary Service passed its second test recently. The unit, designated by the Office of Personnel Management to recruit, examine and certify candidates for commissary management positions with the Air Force, Navy and Marine Corps, was audited by two members of the OPM. During the first audit (September 1982) the unit was called, "a model examining program," by OPM officials. The results of the second audit were equally favorable. According to OPM evaluators, "...the unit is performing at such an excellent quality level that the audit team didn't identify a single technical error."

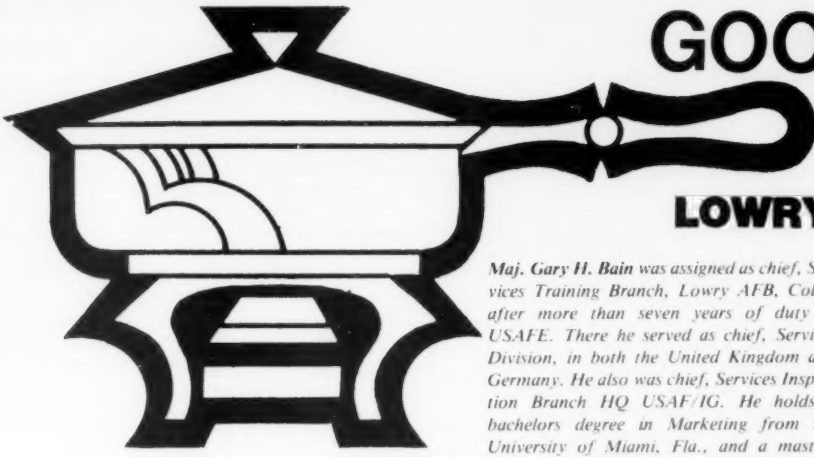
Malthus Norcutt, OPM assistant area manager, called the operation, "by far the best examining unit in the Southwest Region and probably in the entire United States."

Three staffing specialists and one staffing clerk run the unit, located at Air Force Commissary Services Headquarters, Kelly AFB. Before the unit was established, anyone interested in commissary management careers applied to 10 OPM regional offices to be considered for world-wide employment. The unit has done away with multiple applications and provides a consistent pool of potential commissary managers, according to Roy Gay, AFCOMS director of personnel.

The unit has established a program that offers the three services external applicants of exceptional quality. The unit's job announcement, AFCOMS-02-01, is available at all Federal Job Information Centers, according to Roger Macias, AFCOMS senior personnel staffing specialist. It outlines the basic qualifications required for commissary management positions. Amendments to the announcement, telling the dates applications are accepted, are published quarterly. They're also available at the information centers.

The unit also recently recruited, examined and filled six open mess manager grade positions for the Air Force Morale, Welfare and Recreation Division. This one-time effort was delegated to the AFCOMS unit and proved to be a success, according to OPM officials.

"Our second year is now behind us," said Macias. "We know we're on the right track as far as OPM and services' resale branches are concerned. We'll press on."



# GOOD THINGS A'COOKN'

## LOWRY TTC UPDATE

*Maj. Gary H. Bain was assigned as chief, Services Training Branch, Lowry AFB, Colo., after more than seven years of duty in USAFE. There he served as chief, Services Division, in both the United Kingdom and Germany. He also was chief, Services Inspection Branch HQ USAF/IG. He holds a bachelors degree in Marketing from the University of Miami, Fla., and a masters degree in Guidance and Counseling from Troy State University.*

by Maj. Gary Bain

Bigger and better things are happening at the ***Services' School House***, Lowry AFB, Colo. Among them are two training innovations in the biggest training requirement, the basic food service course.

**Dining Hall**

The first innovation is the transition to using one of Lowry's dining halls for meal preparation training.

Students in the basic food course will accomplish all food preparation in the dining hall while being trained. This differs from the present system of sharing cooking responsibilities with civilian contract cooks. There are several advantages in the transition to include:

- More hands-on training in areas such as progressive (batch) cooking and improved food preparation techniques
- More realistic training
- Higher quality graduates
- Improved instructor training in management practices.

Finally, the transition will provide students in the Food Service Supervisor and Food Service Officer courses the opportunity to observe innovative management techniques of operating a dining hall.

**Demonstration**

The second innovation for improved food service training is the construction of a food service laboratory in one of our classrooms. The main purpose of the laboratory is a ***hands-on*** demonstration ability of the theory portion of the food service course. A demonstration/-performance-type lesson can be prepared by the instructor using newly installed equipment that will consist of a range, microwave oven, dishwasher, refrigerator, mixer, and a demonstration table to include a 45-degree mirror over the demonstration table. Student seats will be elevated in three tiers so all can easily see and contribute to class participation.

This project will help to equate our training atmosphere and equipment to any similar institute. The project is currently in the design stage with installation of the equipment programmed for this fall.

**Courses Related to Quality of Life Programs**

Turning to our training personnel requirements (TPR) and the courses that are currently offered at Lowry, the schedule is packed with courses related to Air Force Quality of Life programs. As previously mentioned, our biggest training requirement is the Basic Food Service course. Included in this course are four weeks and four days of classroom work during which students learn cooking theory.

In the Prime RIBS (Readiness in Base Services) portion of the course, students train in a field environment and learn to light the M-2 burner and immersion heater. After four weeks of classroom instruction students are trained in Lowry's central preparation kitchen, pastry kitchen and base dining halls where they help prepare food to be used in the dining halls.

Food service NCOs return for advanced management training which includes a week of training in the A La Carte System (ALACS). ALACS training is a separate course conducted during the last five days of the regular course. This is done to enable students who have attended the course prior to ALACS the opportunity to attend without going through the entire course again. Its primary concentration is on the Recipe and Menu Pricing System (RAMPS) and the software generated by the system.

The Food Service Officer course leans toward management, accountability, control, facility improvements, consumer affairs and readiness. Student officers are also exposed to Prime RIBS training.

The Commissary Operations course, our second biggest training requirement, teaches the skills and knowledge needed for students to direct and supervise a commissary operation. The course supports AFCOMS' primary mission of "Providing subsistence for the Air Force." On the resale side, management of commissary stores is stressed with the goal being to maximize service and minimize cost. In the near future we will develop a Subsistence Operations Specialist course (AFSC 612X1), to meet AFCOMS' need for formal three-level training. About 120 students are anticipated per year in this course.

***Quality of Life*** is the name of the game in our Billeting course. We stress the importance of management of permanent party and transient facilities, adequacy standards, facility upgrading and nonappropriated fund management of branch functions in at the divisions and squadron levels.

The Services Operations course graduates about 60 captains and lieutenants per year who will serve as base level services officers. It is a three-week management overview of base level services functions. The Staff Officer course trains senior cross-flow officers who are crossing over to the career field. It trains in management of large services divisions or squadrons, taught in seminar fashion where senior staff officers discuss services related problems and work the solutions to these problems.

The Mortuary Affairs course trains officers, NCOs, and civilians in this sensitive area. Subjects covered range from briefing the next of kin to preparation and

casketing of remains. Students are also trained in search and recovery techniques through a simulated aircraft disaster. This course is identical to the third week of the Services Operations course.

**Mobile Training**

The ***school house*** continues its Mobile Technical Training (MTT) support to USAFE services personnel. The billeting instructor flew to Ramstein AFB, Germany, in summer of '81, to conduct the Billeting Management course. The course was attended by 24 billeting officers, NCOICs, and civilians from various installations in England, Germany, Spain, and Turkey.

During the three-week course, the students studied subjects such as adequacy standards, central dormitory management, and occupancy forms and reports. Training also included NAF management, contract quarters, furnishings management, interior design, and front desk management. Highlights of the course included a visit to the Prime RIBS instructional facility, USAFE underground command post, Rhein-Main AB hotel, and USAFE command briefings.

The USAFE Services staff provided a number of guest speakers to work on unique problem areas. With the guest speakers and staff, students received an opportunity to discuss individual base problems on a one-to-one basis and to get better acquainted with members of their major command.

The Billeting Management and Food Service Supervisor courses were taken to USAFE once again in August 1982. FY '83 MTT includes taking these courses to USAFE plus the Services Staff Officer and Services Supervisor courses.

**Future Plans**

Looking at further training enhancements, ***readiness*** plays a major role. Enhancement ideas include:

a. A slide tape presentation on readiness in general, field feeding, and billeting and mortuary in the field.

b. Further emphasis on clothing management.

c. Expansion of training on Fraud, Waste, and Abuse.

d. Training in writing both operations and logistics plans.

e. An enhanced lesson on public affairs to improve the services image.

f. Introduction of a case file format for the Mortuary Affairs course.

g. In billeting, emphasis on new construction and providing literature in the dormitory management area.

h. Emphasis on food service contract negotiations and managing bakery operations.

i. Readiness in mortuary affairs, to include mass burial and the Joint Graves Registration (JCGRO) program.

As you can see, Lowry TTC has come a long way in training accomplishments and continues to work toward improved training – its reason for existence.

# FIRE, THE TWO-FACED ELEMENT

## Grease Flareups Are Leading Cause of AF Home Fires

**by Sgt. Lea Blake**
**Associate Editor**

Fire can be a two-faced element in today's living. Not only does it cook our food, warm our bodies and light our way – it can kill. Often fire is more costly in terms of life and limb than property.

Consider the parents of a two-year-old boy who recently received second and third degree burns over 30 percent of his body – consider his father who got second degree burns on his hand.

The fire occurred in their Air Force home. A gas can was placed in their utility room. A pilot light on the gas hot water heater ignited vapors from the can. The fire started. By the time fire fighters arrived, the man had put out the fire with a home extinguisher. It was just a small fire.

•Preliminary cost in damages to the home – just $180.

•Loss estimate other than Air Force – none?

According to officials with the Fire Protection Group, Air Force Engineering and Services Center, Tyndall AFB, Fla., this was a small fire with extremely low damage to Air Force property. However, the cost to the boy and his parents – can it be measured? This type of fire, improperly storing gasoline or other combustibles, say AFESC officials, isn't the leading cause of fire in the home. Of the 644 total fires since the first of the year, 238 were in the home. A whopping 23.8 percent of those fires were in the kitchen. The major cause – unattended cooking fires – grease. As one official said, "Mama turns on the french fries for dinner and then goes down the street or out in the front yard to talk to her friend. Thus, a fire is born." Cooking grease left sitting on a burner – leaving grease to build up under the stove top near pilot lights or flames – these contribute to the possibilities of fire.

The second leading home fire cause is children playing with matches. AFESC's MSgt. Gerry E. Knapp put it this way, "When matches and lighters are left within reach of children, sooner or later they will play with them. Children will imitate their parents. When the parent lights a match and tosses it into the ashtray, children will copy them. It is the child's learning process to imitate adults. Lighting a match is no exception, but the outcome can mean disaster."

Appliances and electrical systems fall into third place when listing the causes of home fires. Lint build up in dryers, defective or neglected appliances (coffee pots and toasters for example), are textbook examples of fire hazards.

Sergeant Knapp also said, "Improper disposal of smoking materials, and falling asleep while smoking is also a major cause of fires in the home. Cigarettes, cigars and pipes are dangerous!"

Finally, improperly storing gasoline and other combustible substances is a major cause of home fires.

The challenge to fire fighters and the entire E&S community is the same. Lt. Col. Richard T. Aldinger, former chief of the Fire Protection Group (now Energy director) said, "Our Air Force family members need to be informed about the large number of housing fires now occurring. The majority of these fires happen in the kitchen. Further, they result from carelessness and cause everyone concerned a lot of grief, inconvenience and expense. ***Recent changes in the law concerning liability for negligence means that occupants of family housing can expect to pay for damages to the structure without any limitation on their liability.***"

Take it from the professionals, fire can be costly in dollars and lives. Take time to think before you leave the kitchen – turn off the burner. Make sure your children don't play with matches. Rearrange your home so that electrical plugs aren't "jeririgged." Remove other hazards. Have your appliances checked regularly for defects.

Protect your home, but most of all, protect you and your family.

(This article was picked up for distribution to all Air Force base newspapers by Air Force News Service.)

## Billeting depreciation, "The misunderstood item on the income statement"

# "COST ALLOCATION"... Nothing More.

by Maj. James P. Blanco

**A typical scene in a non-appropriated fund (NAF) management office might be** — Billeting Manager — "What are these depreciation expenses for? I already paid $10,000 for that new furniture. Why am I being charged again?"

Accountant — "Your asset has been capitalized and we are now allocating the acquisition costs to the particular period related to the useful life of the asset using the specific rates outlined in Table 18-2 AFR 176-10."

The explanation is entirely correct, but like many of us in the Air Force the accountant has used "jargon" that does not communicate. The billeting manager is now convinced that depreciation falls into one of three categories:

- Depreciation is a ***device*** used by accountants to ensure that there are enough funds available to replace an asset when it is worn out.
- Depreciation is a ***ploy*** used by accountants to make the fund pay twice—once by cash and a second time through depreciation.
- Depreciation is a device used by civilian corporations to ***avoid paying taxes*** and therefore shouldn't apply to billeting.

It is, of course, easy to see why these misconceptions are generally held. The manager knows he has paid for the asset — he authorized the check—his cash is now depleted—and he is now faced with an increased depreciation expense which lowers his net profit.

All three of the above conceptions are not correct. Current U.S. Air Force NAF accounting is anchored in the accrual basis accounting—versus a cash basis. In other words, revenue is recognized (recorded) when it is earned (accounts receivable is an accrual) and expenses are recognized as they are incurred (prepaid supplies is an accrual) ***not*** when the actual "cash" changes hands. To carry the accounts receivable example a step further a customer may owe billeting fees for January and February room charges. But the income is recorded in both months, not just in February when the bill is finally paid.

Depreciation falls into the same accrual category. Expenses, such as payroll are charged off each month. Cleaning supplies may or may not be carried in a prepaid account and expensed as they are used. Large capital assets, such as furniture, are always expensed (depreciated) over the life of the asset. If $10,000 worth of furniture was expensed in one month the account would be $10,000 in arrears and it might take two to three years to earn sufficient income to bring it back to a break even basis. Using accrual accounting a $10,000 purchase might be depreciated (expensed) only $83 per month (10 years straight line depreciation). That makes quite a difference on an income statement.

The purpose, then, of depreciation is to distribute "the cost or other basic value of tangible capital assets over the estimated useful life of such assets in a systematic and rational manner," (AFR 176-10). While depreciation is recorded as an expense each accounting period and reduces bottom line net income, it does not reduce cash flow from operations. The cash outlay was made at the time the asset was purchased and the depreciation is a non cash expense.

Replacement cost is also non-related to depreciation. An asset you purchased in 1975 for $10,000 may be fully depreciated by 1985. A new item may well cost $15,000. The manager's strategy for equipment replacement should be to have enough in his or her "CIP" investments to replace the item. CIP should not necessarily match accumulated depreciation but should be matched against capital expenditures, budgets and five-year plans.

Depreciation also has an effect on the balance sheet (NAF Statement of Financial Condition). In the fixed asset section the initial cost of an item is recorded. As depreciation is expensed each month it is "accumulated" under accumulated depreciation or as a "negative (CONTRA) asset" this reduces total fixed assets.

The task then for the billeting manager is to be aware of depreciation and to plan for its influence on the income statement and balance sheet. Situations may come when depreciation charges may cause a net loss position. But, as long as gross income shows a profit position and cash flow (revenue sufficient to pay current monthly expenses) is positive, the fund is healthy.

In the final analysis, depreciation is a logical means of expensing an asset over its useful life expectancy. Using this knowledge will allow the billeting manager to better interpret his financial statements and devise financial strategies that will ultimately benefit the customer.

**This article is the result of data gathered from over 20 base visits performed by the author as a member of the Headquarters Air Force Civil Engineering and Services Management Engineering Team (CESMET). Depreciation is a particulary tricky accounting concept and it became evident during the visits that many billeting managers needed further information on the subject.**

*Maj. James R. Blanco is the services staff officer on the Headquarters Air Force CESMET. Previously, he was assigned as the chief of services, Spangdahlem Air Base, Germany. He has a bachelors degree in Business Administration from Memphis State University and a masters degree in Human Relations and Management from Louisiana Tech. University.*

# People worth noting

**LT. GEN. RICHARD E. MERKLING** has succeeded Lt. Gen. Billy M. Minter as deputy chief of staff, Logistics and Engineering. General Minter was assigned as commander-in-chief of U.S. Air Forces in Europe. General Merkling, born 1925 in Kendallville, Ind., graduated from the University of California with a bachelor of science degree in 1950. He received his master's degree in 1968 from The George Washington University. General Merkling was formerly vice commander, Air Force Logistics Command, Wright-Patterson AFB, Ohio. He has flown more than 100 combat missions and was a test pilot at Edwards AFB, Calif.

**BRIG. GEN. PAUL T. HARTUNG,** who retired after serving as deputy director, Air Force Engineering and Services for the Israeli Airbase Construction Program, received the Defense Superior Service Medal upon retirement for his accomplishments.

**BRIG. GEN. GEORGE E. ELLIS,** deputy chief of staff, Engineering and Services, Tactical Air Command, Langley AFB, Va., pinned on his star August 1. He is a graduate of the U.S Military Academy at West Point, N.Y., where he earned his bachelor of military science degree in 1958. He was commissioned there in June of that year. His master of science in systems analysis was received from Arizona State University at Tempe, in 1967. He also holds a masters of business administration from The George Washington University, Washington, D.C. He graduated from the Industrial College of the Armed Forces, Fort McNair, Washington, D.C., in 1972. The general has served at Randolph AFB; Unalakleet, Alaska; Chanute AFB, Ill.; Tan Son Nhut AB, Vietnam; Washington, D.C.; and Maxwell AFB, Alabama.

**COL. JOSEPH T. CALLAHAN** is the new vice commander of the Air Force Engineering and Services Center, Tyndall AFB, Fla., succeeding Col. John L. Perry, who retired after nearly 28 years of service. Colonel Callahan formerly headed the center's Energy directorate. He came to AFESC from Riyadh, Saudi Arabia, where he was program manager for facilities programs for the Royal Saudi Air Force. A veteran of key civil engineering assignments, he has served in Japan, California, Illinois and New Mexico. He holds the BS in Civil Engineering from Tufts University and the masters degree in Civil Engineering from Texas A&M. He has served both as pilot and navigator for Strategic Air Command and Military Airlift Command.

**ROBERT STONE** is now the key Department of Defense official with oversight of many Air Force Engineering and Services programs. He is deputy assistant to the Secretary of Defense for Facilities, Environment and Economic Adjustment. Perry J. Fliakas was previously the OSD focal point. He retired last January as deputy assistant for Installations and Housing. Mr. Stone acquired facilities responsibilities with a re organization effective August 1.

**JAMES W. LUCAS** is the new principal deputy assistant to the Secretary of the Air Force for Manpower, Reserve Affairs and Installations, succeeding Joe Meis, who retired in February. Mr. Meis remained as a special assistant for several months following his retirement.

**MAJ. GEN. STUART H. SHERMAN JR.,** moved from Wright-Patterson AFB, Ohio, where he was commander, Air Force Institute of Technology and the Defense Institute of Security Assistance and Management, to Washington where he is staff director of the Fifth Quadrennial Review of Military Compensation, Office of the Secretary of Defense. At AFIT he was responsible for the School of Civil Engineering, the School of Systems and Logistics, Education with Industry and the Civilian Institutions Program, all of which benefit Air Force Engineering and Services. (See "The PRC: Partner In Professionalism," ***Quarterly,*** Fall, 1981.)

**MAJ. GEN. WILLIAM R. USHER** is the new commander of Lowry Technical Training Center, Lowry AFB, Colo., succeeding Maj. Gen. Titus C. Hall, who retired. General Usher formerly directed personnel plans for the deputy chief of staff, Manpower and Personnel, Headquarters U.S. Air Force, Washington, D.C. Lowry TTC is responsible for services-related training, benefiting Air Force Engineering and Services.

**BRIG. GEN. JOSEPH D. MOORE** has succeeded Maj. Gen. Norma E. Brown as commander of the Chanute Technical Training Center, Ill. General Brown retired in July. General Moore was formerly deputy chief of staff for operations, U.S. Air Forces in Europe with Headquarters at Ramstein AB, Germany. Chanute TTC is responsible for DOD fire fighter training and Air Force fuel tank maintenance and repair training.

**LT. GEN. PHILIP C. GAST** has moved from the position of director of operations, J-3, Office of the Joint Chiefs of Staff, Washington D.C., to director, Defense Security Assistance Agency, Office of the Secretary of Defense, Washington, D.C. (See "Operators and Engineers: Readiness Partners," ***Quarterly,*** Winter, 1981-82.) He worked with numerous joint forces rapid deployment initiatives — many involving Air Force Engineering and Services support. A fighter pilot, he has held key assignments in Tactical Air Command, Air Training Command, Southeast Asia, U.S. Air Forces in Europe, Air Force Logistics Command and Iran.

**MAJ. GEN. RICHARD BODYCOMBE,** who since April, 1979 has served as chief of Air Force Reserve, Headquarters U.S. Air Force, Washington, D.C., and commander, Headquarters Air Force Reserve (a direct reporting unit at Robins AFB, Ga.) has retired.

**MAJ. GEN. GILL R. SLOAN,** is the new Chief of the Air Force Reserves in Washington, D.C. General Sloan moved into the position from the 4th Air Force (Res.), McClellan AFB, Calif., where he was commander.

**MAJ. GEN. WILLIAM E. MCADOO,** currently commander of the 14th Air Force, Dobbins AFB, Ga., will move to Headquarters Air Force Reserve at Robins AFB, Ga., as vice commander and the chief operating official.

# SENIOR OFFICER ASSIGNMENTS

**General Officers:**

| | |
|---|---|
| Maj. Gen. Clifton D. Wright, Jr. | AF/LEE |
| Brig. Gen. Charles W. Lamb | AFRCE/M X |
| Brig. Gen Sheldon J. Lustig | USAFE/DE |
| Brig. Gen. Melvin G. Alkire | AFLC/DE (To Be Deputy AF/LEE) |
| Brig. Gen. William M. Shaw | Warner Robins ALC/CV (To Be AFLC/DE) |
| Brig. Gen. George E. Ellis | TAC/DE |
| Col. Joseph A. Ahearn | USAF/LEEP (Brig Gen. selectee) |

**COLONELS AND O-6 SELECTEES**

**A**

| | |
|---|---|
| Aldinger, Richard T. + | AFESC/DEB |
| Alexander, Gerald F. * | AFESC/RM |
| Allen, Robert L. | Hill/BCE |
| Allison, Thayer W. | Eglin/DE |
| Archer, Curtis F., Jr. | Beale/BCE |
| Arnau, Robert R. | 15 AF/DE |

**B**

| | |
|---|---|
| Bannwart, James L. + | TWC/Nellis |
| Baushke, James L. | ESD/FA(PM) (Hanscom) |
| Bell, Robert L. | Tyndall/BCE |
| Bendrick, Frank E. | WPAFB/BCE |
| Bittle, Darrell G. | Dep. Dir. Air Base Survivability (Eglin) |
| Bobek, Andrew S. | Andrews/BCE |
| Bohinc, Stanley A. | Andersen/BCE |
| Bond, Gerald E. | Carswell/BCE |
| Bopp, Charles E. | Altus/BCE |
| Boyer, Robert E. | Malmstrom/BCE |
| Bozarth, Thomas L. + | OSD/MRA&L |
| Branson, Claude | 8th AF/DE (Barksdale) |
| Brooks, David M. | McGuire/CBE |
| Bull, David E. | Robins/DEM |
| Bush, Roger G. | Keesler/BCE |
| Byrd, Herman L. | Air South/DE (Howard) |

**C**

| | |
|---|---|
| Cafiso, Matthew M. * * | AFRES/DE (Robins) |
| Callahan, Joseph T., Jr. | AFESC/CV |
| Canfield, Kenneth W. | SARPMA/CC (Kelly) |
| Cavender, Dwight B. + | PACAF/DEV |
| Clark, Walter L. + | Travis/BCE |
| Clark, Zack C. | 1185 CEGP/CC (ANDREWS) |
| Colclazier, Robert D. | USAFE/DFK (Ramstein) |
| Cole, Earle R. | AFESC/DEM |
| Colosimo, John C. | Ellsworth/BCE |
| Compton, Phil V. | AFIT/DE Dean (WPAFB) |
| Conry, James M. | USAF/LEEE |
| Cornell, David M. | MAC/DE (Scott) |
| Coughlin, John J. * * * | USAF/LEEVP |
| Cowan, Kenneth W. | Hickam/BCE |
| Crowley, Francis B., III | AFESC/RD |
| Currin, David D. + | Loring/BCE |

**D**

| | |
|---|---|
| Daniels, Preston J. | Tinker/BCE |
| Davidson, Carl L. | ASD/DE (WPAFB) |
| DeMartino, Francis A. + | USAF/LEEPR |
| Dierlam, Mark J., III + | SAC/DEPM (Offutt) |
| Duffie, Boyd T., III | Robins/BCE |

**Fl**

| | |
|---|---|
| Fisher, Joseph W. + * | AAFES/IG (Dallas) |
| Forby, Willis E. * | MAC/DEH (Scott) |
| Francis, George F. | SPACECOM/DE (Colorado Springs) |
| Fukumoto, Malcom T. | March/BCE |

**G**

| | |
|---|---|
| Gates, James L. | AFISC/EN (Norton) |
| Gersh, Frederick S. | USAFE/DER (Ramstein) |
| Gilbert, Robert G. | Ramstein/DE |
| Ginnetti, Mario B. | USAF/LEEH |
| Glaze, Harry W. | 554HR/Osan |
| Gogal, Robert M. | TAC/DE-2 (Langley) |
| Goode, Thomas N. + * | SAC/DEH (Offutt) |
| Goodwin, Roy M. | PACAF/DE (Hickam) |
| Gracey, Robert H., Jr. | Maxwell/BCE |

**H**

| | |
|---|---|
| Halac, Harry E. | SAC/DE (Offutt) |
| Hartmann, Arthur J. | Little Rock/BCE |
| Harty, John R. | MAC/DE-2 (Scott) |
| Heinz, Donald A. | Chanute/BCE |
| Hicks, Joe L. | ICAF (Ft. McNair) |
| High, John T., III + | Clark/BCE |
| Hobbs, Terrence E. | AFSC/DE (Andrews) |
| Hodge, Ralph L. | AAC/DE (Elmendorf) |
| Holtmann, Ralph B. | Offutt/BCE |
| Holzknecht, William J. | Shaw/BCE |
| Honaker, Harry R. | Vandenberg/BCE |
| Hooper, Bradley H. | F. E. Warren/BCE |
| Hubbard, James | ROK/US-CFC (Seoul) |
| Husbands, Herman H. | USAFE/DEP (Ramstein) |

**I**

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|---|---|
| Immel, Allen E. | Kirtland/BCE |

**J**

| | |
|---|---|
| Johnson, Bruce W. | Army WC (Rock Island) |
| Judd, Thyane H. + | RDJTF, Chief, Camp Facilities Engineering Division (MacDill) |

**K**

| | |
|---|---|
| Kent, Richard B. | Charleston/BCE |
| Kennington, Roy G. + * | TAC/DEH (Langley) |
| Kishiyama, Arthur Y. + | USAF/LEEPP |
| Klingensmith, Robert L. | USAF/LEEV |
| Klumas, Lawrence J. + | SAC/DET (Offutt) |
| Knipfer, Ronald E. | Fairchild/BCE |
| Knutson, Duane E. | USAF/LEET (CESMET) |
| Kochele, Edward A. | Plattsburg/BCE |

**L**

| | |
|---|---|
| Leach, Ronald S. + * | AFESC/DEH |
| Lewis, Richard B. | Elmendorf/BCE |
| Lewis, Thayer J. * * * | AFSC/DEMV (Andrews) |
| Lollis, Thomas E. | PACAF/DEE (Hickam) |
| Lopresti, Peter + | Sheppard/BCE |
| Luebbermann, John N. + | Vandenberg/O&M |
| Lupia, Eugene A. + | ICAF Fellowship (FEMA) |

**M**

| | |
|---|---|
| Madden, Philip L. | Gunter/AED |
| Mackie, William A. J. | 314AD/DE (Osan) |
| McCarthy, James E. + | ICAF (Ft. McNair) |
| McLean, Horace L. * * | USAF/LEE (IMA) |
| McGovern, Larry E. | Rhein-Main/BCE |
| McHaffie, John C. * * | AFESC/RE |
| Meche, Norwood J. + * | ATC/DEH (Randolph) |
| Mitchell, Jarrell S. | AFCC/DE (Scott) |
| Moore, Edward S., II | 820HR/Lake Mead |
| Moore, John L. | Osan/BCE |
| Morton, Allan W. | AFSC/DEE (Andrews) |
| Munsie, Lawrence, Jr. | AFRCE/CR (Dallas) |
| Murray, Edmond F. | SAC/DEE (Offutt) |

**N**

| | |
|---|---|
| Nethercot, Hubert S. | Grand Forks/BCE |
| Niemantsverdriet, William G. | Norton/BCE |
| Nottingham, Wesley D. + | Scott/DE |

**P**

| | |
|---|---|
| Paul, Herbert D. | ATC/DE (Randolph) |
| Pearman, John D. | SD/DE (Los Angeles) |
| Pellek, John + | AWC (Maxwell) |
| Penn, James P. * * | AFRES/DEH |
| Pezzullo, Richard E. * * | AF/LEEP |
| Pomeroy, Charles W. | Griffiss/BCE |
| Price, John C. | AFRCE/WR (San Francisco) |
| Prince, Neil E. | AFSC/DEM (Andrews) |
| Pullium, Jerry C. | Arnold/DE |

**R**

| | |
|---|---|
| Randall, William V. | 823HR/Hurlburt |
| Reining, Robert R., Jr. | 9AF/Dir Base Spt Plng (Shaw) |
| Rever, Louis G. + | Lowry/BCE |
| Riddle, George M. | AFRCE-MX/DEE (Norton) |
| Rivera, Danny | USAFE/DEM (Ramstein) |
| Robb, William G. | AFLC/DE-2 (WPAFB) |
| Rochez, Fred | SD/DEC (Vandenberg) |
| Rodgers, Raymond E., Jr. + | AWC (Maxwell) |
| Rogers, Charles E. | 819HR/Wethersfield |
| Romero, George A. | Bolling/BCE |
| Rosa, James W. + * | AWC (Maxwell) |
| Rutland, George L., Jr. | ATC/DE-2 (Randolph) |

**S**

| | |
|---|---|
| Sailer, Allen J. | SARPMA/CV |
| Sams, James H., III * * | NGB/DE (Pentagon) |
| Scambilis, Nicholas A. + | Kadena/BCE |
| Scheideman, Elton D. | USAFE/DE-2 (Ramstein) |
| Schwartz, Ray D. | SAC/DE-2 (Offutt) |
| Scrafford, Richard E. | Dover/BCE |
| Shirley, Henry G. | AFESC/DEO |
| Sims, William R. | AFSC/DE-2 (Andrews) |
| Smiley, Kenneth S., Jr. | ESD/DE (Hanscom) |
| Smith, Jerry A. | Nellis/BCE |
| Snow, William M., Jr. | Barksdale/BCE |
| Sowers, John C. | MAC/DEP (Scott) |
| Stallworth, Willett R. | Langley/BCE |
| Staton, William D. | Shaw/BCE |
| Storm, John H. | AFWL/Chief, CE Research Div. (Kirtland) |
| Stowell, Dibrell C. | USAFA/DE (Colorado Springs) |
| Strait, Ernest D. | AFESC/CC |
| Swint, David O. | USAFA/Prof. and Dept. Head, Civil Engineering (Colorado Springs) |

**T**

| | |
|---|---|
| Tate, George R. | AFLC/DEM (WPAFB) |
| Tatum, Walter F., Jr. | MacDill/BCE |
| Taylor, George R. | Edwards/BCE |
| Thornal, Leroy | LMDC/Chief, Base Commander's Management Course (Gunter) |
| Tissaw, George H. | USAF/LEER |

**W**

| | |
|---|---|
| Wade, James R. | 5AF/DE (Yokota) |
| Walters, Roger W. + | Riyadh, Saudi Arabia/DE |
| Watkins, Church, Jr. | ESC/DE (Kelly) |
| Weeden, Ronald J. | McChord/BCE |
| Whitman, Walter T., III | Minot/BCE |
| Whitmire, Jack N. | ATC/DEP (Randolph) |
| Whittenberg, Jean R. | USAFE/DEX (Ramstein) |
| Willett, James G. | SAC/DEM (Offutt) |
| Wray, Duane J. | McClellan/BCE |
| Wyatt, Ralph E. + | Holloman/BCE |

**Y**

| | |
|---|---|
| Yamada, Hisao | PACAF/DE-2 |
| Yancey, Kenneth | PACAF/DEP |
| York, Guy P. | PM/ASTF (Arnold) |

★ Services
★ ★ Reserve or Guard
★ ★ ★ Bioenvironmental Engineer
+ Colonel Selectee

# A RECIPE TO SUCCESS IN SERVICES...

## a philosophy

by Capt. Kathryn M. Wagner

Services — what a rewarding career field. to be part of! Services managers are riding the wave of Air Force quality-of-life programs for modern dormitories, beautiful shopping malls, billeting facilities that are second to none and dining facilities and services that make Hennessy Trophy competition keener each year. Never before have we accomplished so much for so many with such limited resources.

Yet, in the face of these improvements, our field is divided into two opposing philosophies—the survivors and the successful.

The former see their jobs as sitting tight in their offices, donning a flak vest, and waiting for the inevitable complaints. We've all been there..."Typical BX operation (as the machine eats 35 cents without producing a Coke), but what good does it do to complain?"..."*!*!* chow hall, my toast stuck and burnt again!"..."You said I had a reservation!"

It's so easy to be a survivor, because no one ***out there*** understands your job. All you can do is complain about shortages, expect the worst of everything, and give the same answers to the same commander's ***Hotline*** calls over and over. The survivors make services a weak career field, vulnerable to preconceived negative images of Beetle Bailey cooks, uncaring desk clerks and ***Odd Squad*** duties in search and recovery, dormitory furnishings and other functions.

Services is one of the most challenging support jobs in the Air Force. To be a success, the services manager must quickly learn to take the offensive. If an all-out, base-wide attack to show the good side of services isn't launched, services quickly becomes a breeding ground for complaints and customer dissatisfaction and takes on an overall image of losers and unresponsive people. Services managers themselves must assume the task of building this positive image, both through actual services rendered and by always keeping the organization and its people in a positive base spotlight. Develop a ***recipe*** for success that considers each of the many facets of the services mission.

### One Cup Customer Orientation

The services mission is to serve. Customer satisfaction is the yardstick by which our mission effectiveness will be measured. Look at every facility and service through the eyes of the customer. Judge your operations by base desires and needs. Assess hours of operation and usage and make changes as needs change or vary. Always strive for services comparable to the civilian sector and never be impervious to needed change or improvements. You can't run 24-hour-a-day operations with 8-to-5 attitudes.

### One-half Cup Consumer Affairs Representation

In services, this is more than the liaison role managers play to insure that commissaries and exchanges meet the needs of the base populace, or that the base provides needed support to AAFES and AFCOMS functions. Consumer affairs should put services managers in touch with dormitory and unaccompanied officer quarters residents, dining facility patrons, travelers—in short,

all services customers. Committees provide a vital sounding board and can be anything from the Menu Planning Board, BX and Commissary Advisory Councils to wives clubs, Non Appropriated Funds Council and Budget Advisory Committees. Build a responsive image—say ***here's what we can do for you***. Shortstop potential ***Hotline*** complaints by explaining policy, preaching philosophy and investigating valid problems.

**One-third Cup Billeting**

First impressions are lasting ones. The billeting office is not only the first stop for newly arrived PCS and TDY personnel, but the last out-processing stop. Customer courtesy, prompt service and traveler conveniences are the watchword of the billeting desk. Clean and comfortable rooms are essential for the success of TDY missions and PCS families getting settled. Use of appropriated and non-appropriated funds (billeting's two fund sources) must be done wisely. Don't let the transient nature of billeting outweigh requirements for unaccompanied personnel housing utilization, renovation and other upgrade projects.

**One-third Cup Sensitivity**

A successful services manager builds a much-needed sensitivity for people, especially in the management of mortuary affairs. Oftentimes, the base mortuary people make the last impression bereaved next-of-kin have of the military. Mortuary personnel must be knowledgeable, mature and very dedicated to error-free work. (An important part of mortuary affairs is the Base Honor Guard. Develop a strong recruiting campaign and publicize their efforts. Also, let them know they are part of the services team by including them in squadron or division activities.)

**Three-fourths Cup Quality**

First and foremost in food services is offering quality meals in a pleasant atmosphere. Quality food doesn't just appear. It is a consistent effort from the first line food service specialist who prepares the food, to the food service officer and supervisors who merchandize it and the attendant who serves it. Although not all are fortunate to have new or renovated buildings, much can be done at the local level to improve the decor and esthetics of our eating establishments. Establish an effective feed back program.

Variety, ethnic meals and special buffets should be offered as demand dictates. The serving hours should be periodically reviewed to realistically meet the needs of base mission and duty schedules. Remain flexible to changing patron needs. Lastly, build the food service image by treating our food service people like professional chefs. Set standards to match the finest commercial restaurant and try not to compromise that goal.

**A Dash of Color and Control**

Linen exchange is one of the few functions dealing almost exclusively with the needs of the dormitory residents. The time for linen exchange should be convenient for the individual and organizational customer. Make provisions for emergency exchanges.

The furnishings management office maintains accounts on all unit dormitory furnishings, billeting and in some cases family housing. The office is responsible for thousands of dollars in furnishings and equipment. Therefore, accurate controls will help to keep this function running efficiently. Keep records, inventory reconciliations and audit account jacket files.

**One Pound of Taking Care of Our Own**

A continuous need exists to improve the quality of our services personnel. The chief of services must be a hearty advocate of his or her people and the job they do. Publicize their work and accomplishments in a positive light. The jobs our airmen do are often not pleasant ones (taking guff from disgruntled customers, cracking eggs on the serving line, collecting dirty linen, night shift at an empty billeting desk and search and recovery of human remains). But, these jobs are Air Force jobs and must be done. The nature of services work can sow the seeds for low self-esteem and morale problems, particularly among the first-termers. What can be done to combat this?

Press for an Air Force Outstanding Unit Award nomination—work toward the command and Air Force level awards in our profession. (Examples: The Hennessy Trophy; the Innkeeper, Best MAJCOM Food Service, Prime RIBS Program, and Services Division of the Year awards.) Nominate your individual performers!

Not all of us can be winners, but all know that their boss thought enough of them to submit a nomination. And don't limit your nominations. Give personal recognition to the services professionals. Remember you have supply and administrative people on your staff. Don't forget them, and don't forget your civilian employees! Be sure your operation has good internal recognition programs for individuals like housekeeper of the month, airman and NCO of the quarter, facility of the quarter and dining hall of the month. The kudos all add up to prove your people are the best. Awards are great morale builders. They say, "We do our job right!"

**Mix and Spread Evenly**

Be sure each individual's outstanding performance is recognized by the supervisor and up the chain to the senior commander on base. Take time to document a job well done. Get it into performance reports and get higher indorsements for the deserving. Strut your stuff at monthly updates. Be sure services facilities and people are on each visiting distinguished visitor's agenda. Never give the base public affairs office a rest! Services information, publicity, pictures and articles should appear every week in the base newspaper (if you can swing it). Brief at various squadron Commander's Calls. Five minutes of briefing guarantees 15 minutes of audience questions and answers!

**Serve Hot to the Successful**

The key to success as opposed to survival in services is ***dedication***. The chief of services must be dedicated to building a positive base image and preserving that image through outstanding customer service. Services leaders who have customer satisfaction as their mission, will realize success and many rewards in this tough career field. Services doesn't just ***happen***—it takes hard work and long hours. The job is never done.

A survivor or a success?

Only you can determine the answer.

E&S

*Capt. **Kathryn M. Wagner** is presently the chief of Services at Headquarters Strategic Air Command, Offutt AFB, Neb. She has served with the division since 1979 as MAJCOM billeting officer, food service officer and MX base development project officer. She entered the Air Force in 1974 commissioned through Air Force ROTC at Coe College in Cedar Rapids, Iowa. Her initial duty assignment was at Malmstrom AFB, Mont., as the base traffic management officer, services operations officer and food service officer. Under her direction, Malmstrom's dining facility won the 1979 Hennessy Trophy.*

# In Dedication . . .

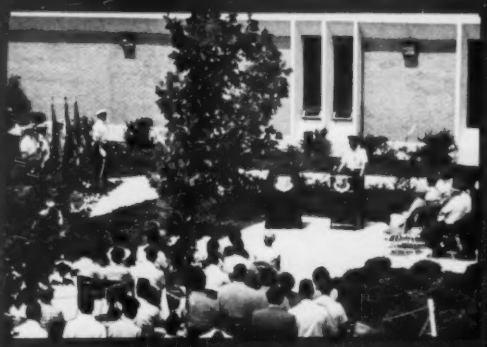
**GENERAL CREECH'S COMMENTS: DEDICATION OF THE AIR FORCE ENGINEERING AND SERVICES CENTER BUILDING IN MEMORY OF MAJOR GENERAL ROBERT C. THOMPSON, USAF TYNDALL AFB, FLORIDA JULY 1, 1982**

Exactly four years ago today an era ended with the retirement of Maj. Gen. Bob Thompson after almost 36 years of totally dedicated service to the Air Force and our country. His period of stewardship as a top leader in Air Force Engineering and Services was marked by vast improvements in mission support and in the quality of working and living environments for Air Force people and their families throughout the world. The farsighted programs he championed continue today—they are enduring—and they stand as everlasting monuments to his memory. The Air Force and its people are deeply indebted to this great leader and good friend. For this reason we are gathered here today to memorialize this building in his honor.

The mission carried on within the walls of this facility symbolizes the very ideals that Gen. Bob Thompson held so high and so dear. He constantly searched for "the better way," for innovation—for constructive change. Bob was a people man—first, last and always—and betterment of their lives was his unwavering and unflagging commitment.

I had the high privilege of counting Bob as a friend and as a highly admired compatriot. I had the great good fortune to serve with him in Europe—and in the Pentagon—and in observing him in action in a variety of settings involving a bewildering variety of challenges. He was a dynamo. He made things happen—good things—and he made them happen even when others said it wouldn't or couldn't be done. He had an expression which I very much admired, and he always said it with a twinkle in his eye. It was: "We can do it. It will only take a miracle a day." His message was that you can do what you believe you can do, and are determined to do—and there's no place in our profession, or our lives, for defeatism, procrastination or negativism. He embodied confidence, assurance and abiding belief in the abilities of his fellow professionals in Engineering and Services. And you know how deeply proud he was of his profession and of you—his colleagues. I need not chronicle in detail to this group Bob Thompson's enormous contributions over his long, rich and brilliant career of service to his beloved country. His move of an entire major headquarters—USAFE—from Wiesbaden to Ramstein—on an impossible, miracle-a-day schedule, stands out in my memory. It was a masterpiece of creative planning and flawless execution—and Bob's footprints and leadership were everywhere. Those were the hallmarks of everything he did.

Looming even larger was his invaluable work in bettering the lives of Air Force people everywhere during his thoughtful, dynamic, and innovative stewardship of Air Force Engineering and Services—a period which resulted in a profound enhancement in our Air Force quality-of-life programs across-the-board. Far better dormitories, greatly improved child care centers, youth centers, base exchanges, commissaries and the like all bore the mark of Bob's vision, energy and total dedication to people. And, of course, his thrust was not only the facilities, but also the quality of the services that are carried out within them. He had another oft-used expression: "Our people deserve and must get first class service," and, by word and deed he showed that he clearly meant service with a heart, and with a smile, and with pride of accomplishment. And he led the way, across-the-board, to major and visible improvements in that regard. His tools were many, but we all remember the countless, grueling hours that he spent traveling to Air Force bases around the world—tirelessly examining all the base facilities. And the great work of his CESMET team. And who can ever



*EDITOR'S NOTE*

*The Air Force Engineering and Services Center building at Tyndall AFB, Fla., was dedicated July 1 to the memory of the late Maj. Gen. Robert C. Thompson. First Air Force director of both Engineering and Services, General Thompson retired just more than four years ago. He died earlier this year. The eulogy at his funeral in Virginia was delivered by Gen. David C. Jones, USAF-Retired, former Chairman, Joint Chiefs of Staff, and former Air Force Chief of Staff. The dedication of building was by another close personal friend of General Thompson, Gen. Wilbur L. Creech, Commander, Tactical Air Command. Attending the dedication were: Mrs. Thompson, their son and daughter; Maj. Gen. William D. Gilbert, USAF-Ret., recently retired Director of Engineering and Services; Harry P. Rietman, Associate Director, AF/LEE; Maj Gen. Robert H. Reed, now deputy chief of staff/Operations, TAC; former commander of the Air Defense Weapons Center, Tyndall AFB; Brig. Gen. George E. (Jud) Ellis, DCS/Engineering and Services, TAC; Col. Ernest D. Strait, the Center's commander; and numerous other high-level friends and associates of General Thompson. The remarks made by General Creech are verbatim. Editor.*

forget the gracious yet forceful way in which he handled the CESMET critiques, and exhortations to the units for improvement.

Yes, Gen. Bob Thompson was a visionary. He saw more clearly than any of us how directly and vitally our mission to support our people affects our people's support of our mission. He also was keenly attuned to our direct wartime needs, and exercised his creative leadership—for example—in the entire concept and area of air base survivability—from design of the TAB V shelters through rapid runway repair, more readiness through WARSKIL, our airfield tone-down program and other battle-related aspects too numerous to mention. Thus—in all these senses—he was a brilliant achiever, and thereby he made a more enduring contribution to the critical defense of our nation than any man I have known. It is therefore totally fitting that this Center—not just a building, but the focus, the centroid, the symbol of Air Force Engineering and Services—should be named in honor of Maj. Gen. Robert C. Thompson.

- He taught us all to care.
- He taught us all to believe in ourselves, and in our colleagues, and in our people.
- He taught us all that, yes, one man can make a difference—a profound difference.

Now, it up to each of us to carry on with that same vision, vigor and determination. Believe me, he will know—and he will approve. E&S

Directorate of Engineering and Services

# Current Emphasis

a brief commentary on significant developments

**INDUSTRIAL ENGINEER REORGANIZATION**—
Air Staff approved the industrial engineer reorganization effective October 1. Cost Accounting and Real Estate will be relocated and certain responsibilities of the IE will be transferred. See the Interim Message Change 82-1 to AFR 85-10, or contact your MAJCOM IE for details. (HQ AFESC/DEMG, Mr. Gray or Mr. McDaniel, AUTOVON 970-6378/6394)

**AUTOMATED FOOD SERVICE OPERATIONS SYSTEM (AFSOS)**—
Testing of the prototype system began at Seymour Johnson AFB, N.C., on September 1. Initial results indicate improvements in customer identification, subsistence accounting and control. At the same time, expansion of the item pricing A La Carte Food Service System (ALACS) continues. At the end of FY82, 77 bases had adopted A La Carte system with 35 more projected during FY 83. (HQ AFESC/DEHF, Mr. Dylla, AUTOVON 970-6197)

**DOD EFFICIENCY REVIEW PROGRAM**—
The office of the Secretary of Defense has mandated an Efficiency Review Program. The objective of this program is to increase productivity and reduce operating costs by eliminating unnecessary and inefficient work practices. In the Air Force the program will be managed by the Air Force Management Engineering Agency (AFMEA) with the Air Force Engineering and Services Management Engineering Team (AFESMET) at Tyndall AFB, Fla., acting as the focal point for E&S functions. Two key elements of the program will be the use of joint E&S Manpower Workshops and the development of Performance Work Statements (PWS). The first scheduled PWS workshop will cover the Food Services (FAC 467X) functions and will be conducted in early January 1983. (AFESMET, Lt. Granger, AUTOVON 970-2973)

**DATA ANALYSIS COMPLETED FOR WARTIME CE STANDARDS**—
AFESC and the Air Force Management Engineering Agency have been working since 1980 to develop wartime manpower standards for the Civil Engineering community. The Air Force Engineering and Services Management Engineering Team (AFESMET) has now completed data anlysis of the wartime requirements and is in the final stages of developing proposed Air Force manpower standards for Combat Theatre and CONUS Civilian Sustaining. Initial coordination and briefings of these standards have been compiled. The AFMS will be provided to MAJCOMS for their review soon. Until that step is complete, the AFMS's will not be finalized and published. The bottom line of the study effort has been the validation of a significant engineering wartime shortfall. The validation of this shortfall will provide the basis for future CE decisions in regard to manpower programming actions required to improve the readiness posture of the CE force. (AFESMET, Lt. Granger, AUTOVON 970-2973)

**USAFE FOL TDY WITH SHORT TOUR CREDIT**—
Prime BEEF and Prime RIBS people are needed to support a USAFE forward operating location (FOL) for 179 days TDY. Individuals selected and completing the TDY are awarded short tour credit and a new short tour return date in addition to getting valuable contingency experience. Primary Prime BEEF/Prime RIBS specialty requirements for this TDY are electrical, fire protection, structural, reefer, equipment, food services and a civil engineering staff officer. (HQ AFESC/DEOP, Capt. Eng, AUTOVON 970-6740)

**O&M MINOR CONSTRUCTION**—
Implementing authority for a $200,000 ceiling, provided by the MILCON Codification Act, is delayed pending resolution of a conflict with the existing DOD Appropriations Act. The $100,000 limit remains in effect for MC projects funded from the O&M or RDT&E Appropriations until further notice. (AF/LEEPP, Lt. Col. Barrett, AUTOVON 225-7774)

**O&M FACILITY PROJECTS**—
The O&M program should consist of high priority projects which: Contribute directly to readiness; improve the quality of life; are necessary to correct fire, safety and health hazards; and/or improve efficiency/productivity. Reducing the BMAR, consisting of previously deferred and still valid priority projects, remains a high interest program objective. (AF/LEEPP, Lt. Col. Barrett, AUTOVON 225-7774)

**AIR INSTALLATION COMPATIBLE USE ZONE PROGRAM**—

AICUZ vicinity maps have not been updated with frequency due to a lack of funds. In order to provide the public with a current map, HQ AFESC will call upon the MAJCOMs and bases to help in providing a map which meets the requirements for the local community planners. It may take a little base-level graphic messaging to come up with a quality product. Other important updates in the program include:

a. The final map production scale for AICUZ studies is changed from 1 inch = 2,000 feet to 1 inch = 4,000 feet. All comments received from the field were favorable except two MAJCOMs. The change in scale will allow a turnaround time reduction of 30 percent and a cost reduction of 40 percent. We will still handle scales other than the new one upon request.

b. Turn around time on HQ AFESC AICUZ products will be shorter due to adding new people to the team, and reducing the final map production time. The time to process will be even shorter by the MAJCOMs and bases using the allotted time to verify the AICUZ products (30 days). If minor corrections are required, they can be called in by phone and followed by a letter. This will also accelerate the process. (AFESC/DEVC, Capt. Laras, AUTOVON 970-6227)

**PLANNING ASSISTANCE TEAMS (PAT)**—

Since August 1981, teams of planners, architects, engineers and others have been invited to 12 bases for intensive one-week planning overview studies. The teams leave reports at the base suggesting steps to be addressed in base comprehensive planning. MAJCOMs prioritize base requests for visits, while AFRCEs manage the program and select team members from throughout the Air Force, matching disciplines to base needs. (HQ USAF/LEEVX, Mr. Lewis, AUTOVON 227-7763)

**OFFICE SYMBOLS CHANGE AT AFMPC**—

Having trouble getting mail to the Personnel Readiness and Mobilization Division at Randolph AFB, Texas? Could be you're using the wrong office symbols. Former symbols MPCYAC, MPCYW, MPCYWX are no longer valid. Division officials urge you to use MPCYRP for the Readiness Plans Branch—and MCPYRO for the Readiness Operations Branch. (HQ AFMPC/MPCYR Message dated August 1982)

**ADVANCED BOMB DAMAGE REPAIR (BDR)**—

Techniques based on the use of advanced materials are currently under development at AFESC. Polymer concrete materials now in advanced development include a modified acrylic, a polyurethane and furfuryl alcohol. These matherials will be used for the construction of a structural cap placed over backfilled crater debris, permitting faster repair times in virtually all weather conditions. The acrylic and polyurethane have been used for scab repairs on the parking ramp at Tyndall AFB, Fla. Even though the materials were blended with wet aggregate, the scab repairs sustained the full 150 passes of the F-4 load cart without signs of failure and remained in place for routine aircraft operations for several months. Crater repair tests using these materials are underway and will continue through June 1983. Meanwhile this does not affect interim guidance. The objective of the longer term advanced BDR research is to field a repair system by FY86. This should overcome many of the shortcomings of the interim guidance techniques. It is imperative that the interim guidance get to the field as it provides a quantum leap in repair capabilities over the AM-2 mat repair. (AFESC/RDCR, Capt. Pierre, AUTOVON 970-6296)

**RESOURCE MANAGEMENT SLOTS TO BE "CIVILIANIZED" BY 1985**—

Civilianization of AFSC 554X0, CE Resources Management, is forecast over the next three years. This decision was based on two major items:

a. Lack of career field progression. No real job in the field for top three NCO grades.

b. Soft contingency requirement—Cost Accounting and Real Property functions are minimal during contingency situations.

Detailed information on the conversion actions and a timetable to the MAJCOMS will be sent out in the future. (HQ AFESC/DEMG, SMSgt. Trueblood; AUTOVON 970-6397)

**HVAC CONTROL SYSTEMS**—

Recent Air Force-wide studies have revealed that substantial amounts of energy can be saved if HVAC controls and systems are properly adjusted and maintained. These studies also revealed that most HVAC control systems were not designed with maintainability in mind. The original control diagrams and other maintenance documentation often are not adequate to enable troubleshooting and repair. Consequently, many controls have been by-passed or are functioning improperly. The result is a loss of system efficiency. More emphasis will be given to MAINTAINABILITY in future HVAC design. Policies and design directives will require better control system documentation. HVAC training courses will provide more emphasis on system analysis and troubleshooting. A program is underway to systematically evaluate and tune-up all HVAC control systems at each Air Force base. This HVAC control system tune-up program calls for system evaluation and prioritization of deficiencies by a joint engineer-technician-management team. Resulting energy savings will, in most cases, justify priority corrective action. (HQ AFESC/DEMM, Mr. McDonald, AUTOVON 970-6363)

# AFIT'S GEM

**by Maj. Alan E. M. Tucker**

The Graduate Engineering Management (GEM) program offered by the Air Force Institute of Technology's (AFIT) School of Systems and Logistics recently received accreditation by the Accreditation Board for Engineering and Technology (ABET). Today, there are about 100 universities and colleges offering graduate engineering management-type programs. AFIT's program, serving the Air Force civil engineering career field, is the first to achieve ABET accreditation.

ABET is the organization that accredits engineering programs throughout the country. Most engineering programs at major universities and colleges are accredited by ABET. The purpose of ABET's accrediting is to identify those institutions which offer professional programs in engineering worthy of recognition. Engineering schools set academic standards to sustain accreditation.

Engineering management is a relatively new field of study within American engineering education. As an emerging discipline, it has experienced an impressive, almost explosive growth pattern during the past three decades. Beginning with one graduate-level program in 1950, the number of programs grew to 26 by 1976, and then dramatically increased to 70 by 1979, 30 additional institutions have added graduate engineering management-type programs. AFIT formally joined these ranks in 1980 when it restructured the Facilities Management Program and renamed it Graduate Engineering Management.

In November 1981 an ABET accreditation team made an on-site evaluation of the GEM Program. The team was most impressed with the school's facilities and the quality of academic and professional education. Following their recommendation, the Engineering Accreditation Council of ABET awarded accreditation.

The program is structured to provide the graduate with the knowledge and skills to manage and solve the complex and dynamic technical, logistical, human, and fiscal problems facing today's middle and upper-level managers in the Engineering and Services (E&S) community. Management requires skills in dealing with people which are not taught in many engineering schools. An engineer's academic training does not normally provide him the skills to motivate people, organize work groups, identify and reduce organizational conflict, evaluate an employee's performance, recognize and reduce stress, and so on. In essence, engineers are rarely educated in integrating the social subsystem with the organization's technical subsystem.

The Air Force and other engineering management programs have been developed to provide engineers with the capability to manage technical work and technical people in a technical environment. The program's curriculum (See Figure 1) provides the student with a mix of qualitative and quantitative management and engineering courses. Taken as a whole, these courses provide an integrated educational experience for the students and prepares them for their dual role (technical and managerial) as engineer managers.

The program and curriculum were discussed in the Fall 1981 issue of the ***Engineering and Services Quarterly***. However, to satisfy the ABET criteria, the program was modified, as shown in Figure 1. The previously offered core course, Federal Financial Management, has been replaced by a new core course titled Engineering Systems and Analysis. The Engineering Management Applications course has been upgraded to a capstone course to allow students to gain practical experience in integrating previously learned qualitative and quantitative knowledge and skills in solving specific civil engineering management problems.

A recent addition to the program is the Executive Engineering Management Symposia. The symposia, initiated by Maj. Gen. Clifton D. Wright Jr., on July 20, 1982, provide students with a cutting-edge perspective of current and future management problems facing E&S leaders. During the 15-month program, the students will hear 10 to 12 presentations by key E&S leaders. Integration of the student's academic knowledge with an understanding of executive-level management styles, programs, problems and decision-making processes will more fully prepare GEM graduates for their challenging assignments in the civil engineering career field.

Admission into the program is open to Air Force officers in the rank of first lieutenant through lieutenant colonel, civilians in comparable civil service grades, equivalent grade officers of other United States services, and qualified international military officers. United States service officers and civilian-level equivalents will normally hold an ABET (formerly ECPD) accredited bachelors degree in one of the major engineering disciplines (such as civil,

(See page 29)

## Graduate Engineering Management Program Curriculum

**REVIEW TERM (4 weeks)**
- Introduction to Computers
- Introduction to Financial and Cost Accounting
- Quantitative Methods Review

**QUARTER 1 (Summer)**
- Managerial Economics I
- Communication for Managers
- Managerial Statistics
- Management and Behavior in Organizations

**QUARTER II (Fall)**
- Research Methods
- Applied Data Analysis for Managers
- Quantitative Decision Making
- Elective

**QUARTER III (Winter)**
- Engineering Systems Analysis and Design
- Production Management
- Elective
- Independent Thesis Study

**QUARTER IV (Spring)**
- Contracting for Engineers
- Engineering Management Information Systems
- Elective
- Independent Thesis Study

**SHORT TERM (4 weeks)**
- Independent Thesis Study

**QUARTER V (Summer)**
- Engineering Management Applications
- Elective
- Independent Thesis Study

**NOTES:**

1. Students also attend the Executive Engineering Management Symposia. During the year, key Engineering and Services leaders visit AFIT/LS to make presentations on specified engineering management topics.
2. At least two electives must come from the following course group: Analysis of Environmental Issues, Technical Aspects of Air Force Energy Issues, and Federal and Industrial Labor Relations.

**Figure 1. Graduate Engineering Managment Program**

# MEA: Double Duty Degree

**by Capt. W. H. Vachon**

The Master of Engineering Applications (MEA) degree program was first publicized in the fall, 1981 issue of ***Air Force Engineering and Services Quarterly*** by Maj. William E. Simpson. The MEA program continues to offer a unique educational program built upon a core of professional continuing education courses taken by the student in residence at the School of Civil Engineering at Wright-Patterson AFB, Ohio. Students tailor an educational program to meet their professional requirements and personal applied management desires.

The MEA degree is achieved by combining locally available college courses with courses available at the School of Civil Engineering. The school provides opportunities for both the civil engineering officer and civilian to maintain their professional proficiency through 26 professional, continuing education courses. These courses are offered at the levels of the upper division undergraduate and graduate. In many cases an officer or civilian may attend several courses a year due to job requirements.

The fact that some students were obtaining several hours of credits per year fostered the idea of combining professional continuing education courses with locally available college courses into an applied master's level program under AFIT sponsorship. In the past, our students were transferring AFIT credits to other master's degree programs. The MEA program is an opportunity for our professionals to stay abreast of their specialities while at the same time obtaining a master's degree.

The MEA program can best be qualified by reviewing the eligibility and academic requirements.

You are eligible for the MEA program if you:

- Possess a bachelor's degree in engineering or architecture
- Have a cumulative grade point average of 2.50 or better
- Are an officer or officer equivalent civilian serving in the civil engineering career field
- Have a score of 1000 or better on the Graduate Record Examination (GRE)
- Have a score of 500 or better on the Graduate Managment Applications Test.

When accepted into the MEA program, you have five years to complete 48 quarter hours of work beginning with the start of the first course applied towards graduation. Of these 48 quarter hours, a minimum of 24 hours must be taken in residence at the School of Civil Engineering and a maximum of 18 quarter hours are taken at your local college.

The remaining six quarter hours involve thesis work on a topic of interest to both the student and the Air Force. Work on the thesis must begin by the start of the fourth year of the program and must be completed before the end of the fifth year.

The program's time limitation necessitates attending a minimum of 24 weeks over a five-year period in residence at the School of Civil Engineering. Resident course prerequisites, which include job position requirements, cannot be waived solely upon an individual's acceptance into the MEA program. Thus, individuals who move through the base civil engineering organization positions, increase their opportunity to meet the five-year limitation.

The MEA program thus offers an excellent opportunity to earn a master's degree and to maintain professional currency through a combination of local college courses and School of Civil Engineering courses in a package tailored to your interest and the Air Force's needs.

For more information call me at the School of Civil Engineering (AFIT/DEM), AUTOVON 785-4552.

*Capt. William H. Vachon was assigned on Oct. 1, 1981 to the School of Civil Engineering as an instructor in Engineering Management. He came to the school from the Air Force Institute of Technology, School of Systems and Logistics. In March of 1973 He earned a bachelor's degree in Civil Engineering from Auburn Univeristy. He is completing requirements for a master of science degree in Engineering Management from the Air Force Institute of Technology. He completed Squadron Officers School in June 1978. Captain Vachon is a member of the Society of American Military Engineers.*

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**AFIT's GEM**

(From page 28)

electrical or mechanical engineering). One of the program's strengths is placing civil engineers who have had work experience in an environment where they can learn from each other and from an experienced faculty. Therefore, the majority of students have had at least one civil engineering assignment prior their AFIT assignment.

The GEM Program represents a unique opportunity for qualified officers and civilians to pursue a challenging graduate-level program uniquely designed to enhance their skills, knowledge, and abilities as engineer managers within the Air Force E&S environment. The GEM program has been recognized for its academic and professional excellence, and only its graduates can claim an ABET accredited master of science degree in Engineering Management. This is a prestigious honor for AFIT and the Air Force civil engineering career field. For the aspiring civil engineering career officer, it is a program that he or she should not pass up.

**Information on application procedures for U.S. Air Force officers is contained in Air Force Manual (AFM) 50-5 (Chapter 5, Section A-AFIT). Air Force civilians (GS-11 or above) should refer to Air Force Regulation (AFR) 40-411 and AFR 40-418. Other information concerning civilian entry can be obtained from Charles Johnson of the Office of Civilian Personnel Operations (OCPO/MPKCE), Randolph AFB, Texas, AUTOVON 785-6231, or the program manager, AUTOVON 785-4943/4965.**

The GEM Program represents a unique opportunity for qualified officers and civilians to pursue a challenging graduate-level program uniquely designed to enhance their skills, knowledge, and abilities as engineer managers within the Air Force E&S environment.

*Maj. Alan E. M. Tucker, instructor in Engineering Management, is the program manager for the Graduate Engineering Management Program, School of Systems and Logistics, AFIT, Wright-Patterson AFB, Ohio. He earned a bachelor of science degree in Industrial Engineering in 1969 at West Virginia University. His master of science degree in Facilities Management was earned through AFIT in 1977. He is finishing his doctoral work in Organizational Behavior with Ohio State University.*

# FY82 Professional Continuing Education Course Offerings

AFIT School of Civil Engineering — Wright-Patterson AFB, Ohio 45433

## *MANAGEMENT APPLICATIONS COURSES*

***MGT 001, Base Civil Engineering (2 weeks):*** *For the newly assigned officer and civilian.*

***MGT 002, Commanders Civil Engineering Orientation (1 week):*** *For wing and base commanders and deputies.*

***MGT 004, Environmental Protection Committee Members (1 week):*** *For EPC members.*

***MGT 400, Base Civil Eningeering Staff Officer (2 weeks):*** *For BCEs and deputy BCEs. Class 83A is designed primarly for experienced BCEs; Class 83B for newly assigned BCEs.*

***MGT 403, Industrial Engineering Management Applications (2 weeks):*** *For chiefs of industrial engineering branches.*

***MGT 406, Family Housing Management Application (2 weeks):*** *For chiefs and personnel in family housing management.*

***MGT 415, Contract Preparation (2 weeks):*** *For architects and design engineers in EEP.*

***MGT 416, Financial Management Applications (2 weeks):*** *For CE funds managers.*

***MGT 420, Engineering and Environmental Planning Management Applications (2 weeks):*** *For chiefs of EEP branches.*

***MGT 425, Contract Management (2 weeks):*** *For architects, construction management, and design engineers in EEP.*

***MGT 427,Fire Protection Management Applications (2 weeks):*** *For base fire chiefs and deputy fire chiefs.*

***MGT 430, Operations Management Applications (2 weeks):*** *For chiefs and deputies of operations branches.*

***MGT 520, Environmental and Contract Planning (3 weeks):*** *For base development planners.*

## *TECHNICAL APPLICATIONS COURSES*

***ENG 400, Construction Cost Estimating (2 weeks):*** *For CE personnel involved with estimating costs of Military Construction Program (MCP) and O&M projects.*

***ENG 460, Mechanical Engineering for Supervisors (2 weeks):*** *For engineer supervisors in EEP and operations branches.*

***ENG 470, Electrical Engineering for Supervisors (2 weeks):*** *For engineer supervisors in EEP and operations branch.*

***ENG 472, Engineering for EMCS (2 weeks):*** *For systems engineers in the operations branch.*

***ENG 480, Building Systems (3 weeks):*** *For engineers/architects in EEP branch.*

***ENG 485, Contingency Engineering (2 weeks):*** *For all CE officers with mobility or base recovery roles. Class 83D, 2 weeks, is designed primarily for Air National Guard/AF Reserve.*

***ENG 490, Architectural Planning (2 ½ weeks):*** *For architects, architectural engineers and engineers performing architecture design.*

***ENG 500, Environmental/Sanitary Engineering (3 weeks):*** *For civil and sanitary engineers.*

***ENG 550, Pavement Engineering (3 weeks):*** *For pavement engineers.*

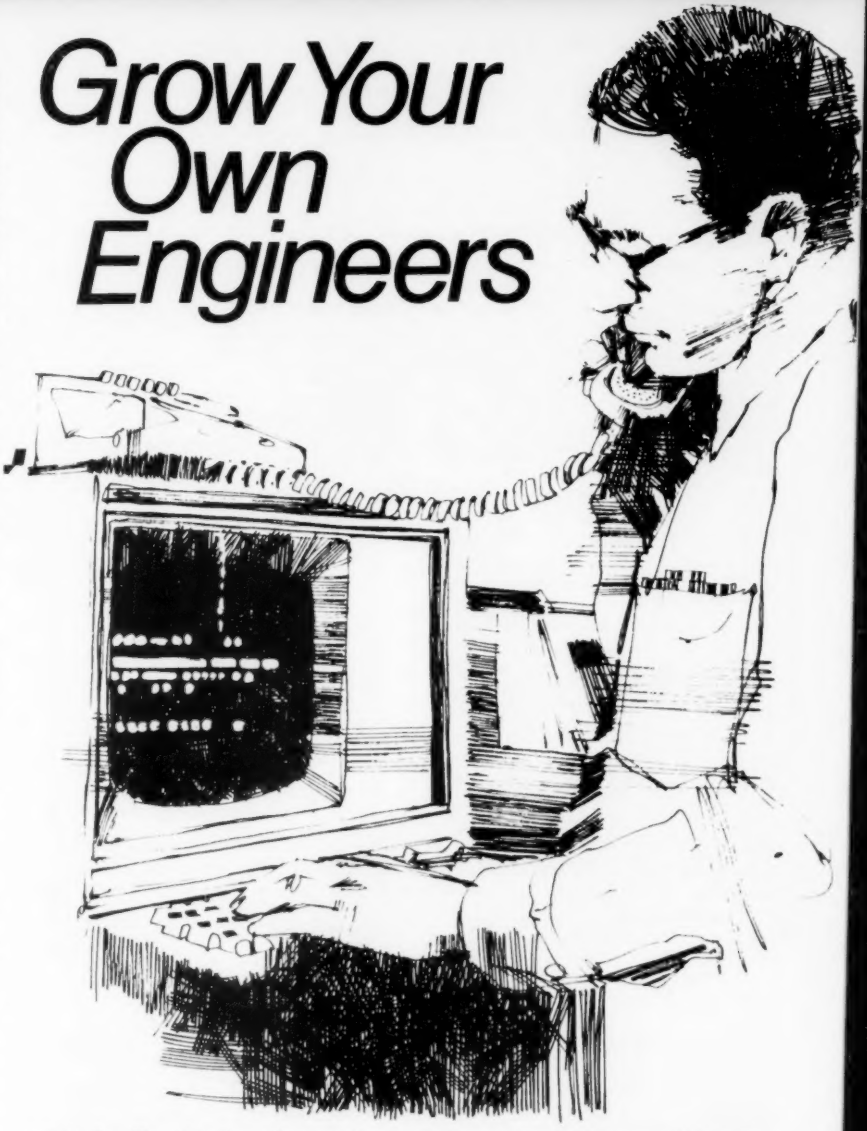
***ENG 561 HVAC (4 weeks):*** *For design engineers.*

***ENG 563, Facility Energy Systems (3 weeks):*** *For experienced mechanical engineers.*

***ENG 571, Electrical Engineering (4 weeks):*** *For design engineers.*

***ENG 590, Corrosion Control (2 weeks):*** *For corrosion engineers.*

# Grow Your Own Engineers



**by 2nd Lt. James Aldrich**

Before joining the Air Force in 1976, I had what most would consider to be a good job—made good money, wore a suit to work, etc. But, I was "pigeon-holed" and saw little hope for a change. What I needed was a company that offered latitude in job assignments so I wouldn't get bored. As it was, I was fast on my way to having an employment record with a new company every couple of years. I already had some college, but no degree and not enough money to return to school on my own. In turn, I went job hunting.

When I first looked at the Air Force (just a whim at the time) I was surprised. First, it was a place where I could serve in a variety of jobs and still stay with the same employer. Secondly, the benefits were excellent. Finally, I admit that there was a certain factor of patriotism. The biggest drawback was the money, or lack of it. As an airman basic, I would be cutting my salary by two-thirds.

Then my recruiter told me about the Airman Education and Commissioning Program (AECP). As an officer, I would make enough money. I'd have a way to complete my college degree, and it would keep me in management/supervisory positions. It was a gamble, but I felt the odds were in my favor. I enlisted with that as my goal.

Once I raised my hand, I found I couldn't apply for the program until I got to my first permanent station. Once I arrived in Germany, I found that I would have to serve half of my tour before I could apply. So I waited, worked, got to know the Air Force, and actually enjoyed myself. When the time finally came for me to put in my paperwork, I was fortunate in three respects.

First, I had all the prerequisite courses in math, physics and chemistry out of the way so I didn't have to find a local school that offered them. Those of you who don't have these courses, don't despair. Even if there are no local schools, check with your base education officer. There are non-terminal temporary duty (TDY) programs that can get you to a school and get you the courses you need. Financially, you'll be on your own, but you can use the GI Bill, Veteran's Education Assistance Fund, Air Force Assistance Fund, and school grants. There's no way that not having the prerequisite courses should hold you back for long.

Secondly, my commander, Col. William Cockayne, gave me every encouragement and all the assistance I needed. Finally, even in an overseas location, the help I got from the base education office was outstanding. The education officer and his staff did a superb job in helping me get my application together and riding herd over the red tape. His staff kept track of where my paperwork was, how I was doing, and helped me cut across some pretty sharp corners in both the academic eligibility and the actual application phases. (The first phase tells you if you can apply and in what disciplines. In the second phase, your records go before the selection board.) Once I found I was eligible, again, my gratitude goes to the education staff. They were a great help in providing information for school selection. Further, I found another excellent source of school information—the officers on base. I was going to be a civil engineer so I talked to every civil engineer I could find. My final acceptance into AECP came in November of '78 and the real work began. I had picked a school, the Air Force had okayed my selection, and now all I had to do was convince the school they wanted me as well. (It seems they wanted some say in the matter too.)

Back to the education office for a minute. Have you ever tried to get an old high school transcript or a copy of 10-year-old Scholastic Aptitude Test (SAT) scores? Did you know that getting your CCAF transcript is a two-part process? First you have to establish your records

and then get a copy. Again, all this takes time. So, if AECP is in your plans, get to your education office and get started.

In the school registration phase, my program manager became my new best friend. He was always there and ready to help when problems came up. Remember those 10-year-old SAT scores? Well, they never were found and if it wasn't for my advisor's help, I would still be in Germany passing letters back and forth waiting for someone to track them down. Being thousands of miles from the school and not being able to telephone, there was no such thing as a small or easy-to-handle problem; however, with the program manager's help, my acceptance came through in the spring of '79. All that was left to do was PCS and arrive by the fall quarter start date.

As far as the PCS move itself, do everything you can to visit the city nearest your school in advance. I couldn't, and in turn, I paid for it in mistakes and wasted time. When the AFIT information package warns that there may not be a base in the area, believe them. I had no major Air Force facility within 100 miles, so all the familiar housing people, VAQ people, and other friendly faces that I normally turned to just weren't there. I was about 30 days ahead of my furniture. I had to buy a car. I had to get a loan before I could buy the car. I had to find an apartment to have an address to get the loan to buy the car, etc., etc., etc.

Even in a town as big as Atlanta, Ga., finding an apartment was tough. Which ones could I afford? Which ones would allow pets? Which ones allowed children? How tough would it be to get to school? All these questions and more were answered from a $40-per-night motel. If I had had even the most rudimentary feeling for Atlanta or if I had known of the schools housing office (after all they "PCS" freshmen in and seniors out every year) things would have gone a lot smoother. Eventually, I got everything straight and left on 30 days leave to give my furniture time to make its trip.

With the 30 days up, I was back in town and ready to start school. Again, luck was with me. All of the inprocessing chores were handled by the AFROTC office on campus. The NCOIC made this long-distance in-processing a breeze. My personnel records had to go to Wright-Patterson AFB, Ohio. My pay records had to go to Robins AFB, Ga. I had to keep some of my records, etc., but with the NCOIC's help there was nothing to it. As it turned out, the Professor of Air Science and his entire staff were there every time I needed them. From DEERS enrollments to Forms 90, I think I got help from everyone of them at one time or another. Use these folks when you get to your school. They are familiar with the school policy, Air Force policy, the paperwork, and everything a new officer needs. The support they gave me and my fellow AFIT students made life a lot easier.

Okay, in-processing was over and I was ready to start, but what exactly was I to start? What was my new job description? "GO TO SCHOOL AND STUDY!" That may sound oversimplified, but that covered 99 percent of it. Programs may vary from school to school with respect to how much interaction the AFIT students have, but the mission is just as simple as when I was at Technical Training School. There too, our program was to go to school—period!

Now, I knew the Air Force didn't expect me to be a Rhodes scholar. However, had I been involved with 13 different intramural sports and every campus society/fraternity there was and ended up with a report card full of Cs, I would have been in trouble. What I'm saying is don't jump in and try to become a "Joe College" right away. You're in for a culture shock. I was still technically in the Air Force, but for all practical purposes, I suddenly became a civilian. The sea of friendly blue and green I was used to was gone. Add to this the rigors of ***academia*** after a five-year layoff and it's a shock all right. Hence, when you arrive at your school, don't be too quick to unpack the frisbee. Start slow and after you get into your program plan to increase your workload as you adjust to your new surroundings and demands.

It works out a lot better to sit down for your first midterms or finals and find them easier than you expected instead of wishing you had studied just a bit more.

*2Lt. **James Aldrich** is assigned to the Engineering and Services Laboratory at AFESC. A former security policeman, he applied for and was accepted into the Airman Education and Commissioning Program. He graduated from Georgia Tech with a bachelor of science degree in Civil Engineering.*

Like any other duty in the Air Force, the job comes first and the rest of ***academia*** has to fit in as time allows. The rest of my job (outside of studying) was to wear my uniform once a week, sign off on a form that showed I attended all my classes each week, and go to the quarterly meetings with the other AFIT students (providing my class schedule permitted). Like I said, 99 percent of my job was to go to school and study.

Now, what about the "as time allows" part of AECP? I managed to keep busy with student chapters of professional societies like the American Society of Civil Engineers, honor societies like ***Chi Epsilon, Tau Beta Pi*** and ***Phi Kappa Phi,*** and I served as a guest speaker for some of the local recruiters. In addition, I worked with professors on research projects that couldn't otherwise be taken as classes. I sponsored new students (and made some very good friends). I did a survey of local housing and a few other things. It was pretty easy to keep both busy and happy.

The biggest thing to remember is, school comes first. That's why you're there, and doing well is how you'll stay. What if things aren't going so well? What if putting academics first just doesn't seem to be getting the job done? We all went through periods when it seemed like we were butting our heads against a wall. Any course that's giving you problems also probably gave every other AECP student at your school the same problems and they're always willing to help. If that isn't enough, the AFIT graduate students on campus are there, the AFROTC probably has a tutoring program, and there are always the college's own programs. We most often formed study groups and tackled problems ***en-masse***. However, help was always available.

Finally, graduation day came as it will for you too. Now that it's over, I can look back at my pro- that it's over, I can look back at my program with a different perspective. Not being under the pressure of five finals in three days makes seeing my mistakes a lot easier (like not insisting on a sponsor at the school). I'm very grateful, not only to all those who helped me along the way in my program, but also for the opportunity that the Air Force gave me. I'm confident I can pay it back manyfold. Not only do they have an engineer for their investment, but being from the AECP program, I'm a unique type of officer. When airmen come to me I can more easily appreciate their problems and concerns because I was just as enlisted as they. When I hear someone say they're going to shoot the next person that tells them "sorry, you have to be E-4 and over two," I'll know why.

Yes, I owe the Air Force a lot, but I think we're both better off. E&S

# CESMET tips

The Air Force Civil Engineering and Services Management Evaluation Team (CESMET) reviews, evaluates and assists base civil engineering and services functional areas in accomplishing their mission in the most effective and efficient manner. This department is designed to pass along new ways to do the job better.

**SERVICES**

Many services organizations are using "themes" to increase productivity at AAFES and Commissary Advisory Councils. This theme technique provides information to the unit representatives and direction to the meetings versus discussion subjects being developed on a random basis.

Examples are:

1. Fashion show emphasizing "Budget Specials."
2. Tour of meat market including a cutting test demonstration.
3. Discussion of "shop rates" used for garage billings led by the garage manager.
4. Clothing Sales special order procedures demonstration led by the store manager.
5. Displays of new products in the Commissary.
6. "VRR" ordering procedures demonstration of ladies "profiles" led by the ladies department manager.

If possible announce in advance the theme for the next meeting. Experience has shown improved attendance and increased productivity.

**CONTRACTING**

Service contracts are becoming more prevalent throughout the Air Force. We have seen two good ideas to aid in the successful transition to and operation of contracted-out services. First, try to visit a base which already has the function under contract. You will learn to avoid the pitfalls and pick up many positive ideas. Second, once the contract is in operation, make maximum use of the quarterly contract performance meetings with base contracting. Successful contract operations have the base contracting officer, the functional area chief (BCE, Chief of Service, etc.), and the Quality Assurance Evaluators present and actively involved in reviewing contract performance. These meetings do take time, but contract operations are big business and they do deserve your time. More importantly, contractors often provide the functional service to our people and the mission. Keep a finger on the service contract pulse.

**MATERIAL CONTROL**

Residue is one of our first and best sources of materials. It is also an area that "sticks out like a sore thumb" if management of this often complex area is not what it should be.

At Moody AFB we recently saw an agressive management program under the capable leadership of Richard McHargue, the Material Control Chief (AUTOVON 460-3814). This excellent program was highlighted by frequent reviews of residue materials, a "last look" program, monthly meetings with key personnel, and a monthly update report to the Chief of Operations and BCE. Some of the items the Moody BCE reviews each month are:

- Date last residue meeting (who attended)
- Date last inventory
- Are planners and shop supervisory personnel visiting residue area?
- Is storage space adequate for current residue?
- Current value of residue (line items)
- Value of residue last month (line items)
- Value of residue processed to disposal (line items)
- Number of high value items (over $500)
- List of each high value item

You may want to consider Moody's program and add the following items: Is physical security adequate? Is there a backlog of transactions to transfer materials to or from the residue account? Are warehousing practices sound? Is material handling equipment adequate and serviceable? How are standby items controlled, how many do we have, dollar value? Are residue items comingled with nonresidue items? Is a current residue listing being distributed each month? Are warehouse locations and balances accurate (monthly sample)? Are nomenclatures descriptive?

## Oops!
## PARDON MY SLIP

Two talented thinkers turned their attention on a long-term problem in engineering—recruiting. Drs. John W. Demidovich, Air Force Institute of Technology, and C.C. Crawford, a management consultant and a professor ***emeritus*** from the University of California, achieved interesting results.

The method used was the "Crawford Slip Method." It has been used successfully by Dr. Crawford to identify problems and solutions for about 40 years. He has done research and applied problem solving in mental health, defense, physical health, old age, education and logistics, among others. Dr. Demidovich used the method on AFIT military and civilian civil engineering students.

Boiled down, the slips are 2.75 x 4.25-inch, unruled bond paper, passed out to the survey respondents. Dr. Crawford is somewhat pedantic on how respondents fill out the slips. Respondents write across the long dimension; crowd the top of the paper; are limited to one sentence per slip (preferrably short); and are encouraged to write many slips (which are later rearranged). It is a fast method of getting radomized ideas into a cohesive format.

For the "recruiting" study, the respondents were told to outline benefits, develop a language power, and outline a delivery or presentation concept for the recruiting messages.

The accompanying article is a summary of what they achieved. If anyone wants to know more about the method, write to Dr. C.C. Crawford, 3832 Mt. Vernon Dr., Los Angeles, Calif., 90008. If you want to know more about the population surveyed, write Dr. Demidovich at the AFIT School of Systems and Logistics, Wright-Patterson AFB, Ohio, 45433.

# WHY BE AN AIR FORCE ENGINEER ?

**by John W. Demidovich and C.C. Crawford.**

What's good about a career in civil engineering? We asked 98 officers and civilian Air Force civil engineers to write down the benefits or advantages in their jobs. They were in a class with Dr. Demidovich at Air Force Institute of Technology (AFIT). The writing was done by the Crawford slip method.

In about five minutes anyone might be a better recruiter. The "each-one-recruit-one" process can be much easier because of that 20 minutes of slip writing by those 98 professionals at AFIT.

Only key words are printed in what follows. You can fit them into your own persuasive sentences. Pick the benefits that apply to the person you are addressing and the kind of work you are recommending. Add your own ideas in each category of the following outlines. If you think this is a great life, pass the word along.

**A. BENEFITS: Advantages of a career in Air Force civil engineering.**

**1. Personal Growth**

The following are typical of far more fine ideas or wordings that came in on the first 1,000 slips.

a. Challenge: Here is a chance to find how capable you are; be all you can be; discover your personal creativity; control your life; be equal to emergencies; go to the top; unlimited opportunities; look to the sun; sky's the limit; strive to excel; nothing but the best; the way it should be; future is now; take off and win; something worth waking up to; go for it; it's up to you.

b. Responsibiity: You can get experience right away; immediate responsibility in large amounts; more than in industry; more responsibility faster; ability to make decisions; the buck stops here.

c. Leader or manager roles: You can gain management experience, training, skills, capability; be a decision maker; decisiveness; leader, not loner.

d. Learning: Learn while you earn; free continuing education; advanced degrees obtainable; preparation for civilian careers; forefront of technology; engineering for the future; professional licensing privileges; many short refresher courses; a usable trade; learn to do it yourself; why pay the plumber?

**2. Quality of Life**

a. Status: You can get respect at early age; respect for expertise, professional; capable; what others can't do; important missions; managing mountains, not molehills; spending millions of dollars; dealing with contractors; bore through ground, walk on water, fly through air; power; prestige; live with pride.

b. Realism: Visible results; tangible outcomes; real problems; hands-on experiences; dealing with THINGS; work that can be SEEN.

c. Variety: Diversified activities; ever-changing roles; wide-ranging orientation; broad spectrum of growth; always something new; never a dull moment; new people and places; variety in work places, bosses, management styles; new problems and situations.

d. People: Change to meet people, different types, pleasant co-workers, beneficial friendships; people helping people.

e. Recreation: Free recreational activities; peer socializing; varied social-cultural exposures; have fun.

f. Working conditions: Fair dealing, relaxed atmosphere; not pressured; chance for creativity; jobs not over-regimented; co-captain with your boss; long rewards for long hours.

g. Travel: Mobility; see the world; travel free; we serve all over the world.

**3. Economic Benefits**

a. Pay: There's a job for you; security; job stability; pay is comfortably livable; you may not get rich but you surely won't starve.

b. Promotion: Career starts today; quick progression if capable; climb career ladder; no limits to how far you can go; women have better chance than in civilian life; reach for the top.

c. Fringe benefits: Benefits far beyond salary; free medical, dental, pharmacy services; many tax advantages; access to low prices at base exchange and commissary; inexpensive life insurance; 30 days vacation; chance to retire early; free educational advantages; favorable allowances for clothing, housing, utilities; many benefits for family dependents.

**4. Patriotic Benefits**

a. Service beyond self: More than just a job; serve self and country; protect our future; what you can do for your country; commitment to a noble mission; create history; a better tomorrow.

**B. DELIVERY: How to reach potential recruits with the "benefits" messages.**

**1. Mass Exposure**

a. Displays: Provide colorful and dynamic displays of Air Force activities; ads on busses; displays at conventions; posters where students hang out; displays at conventions, rent a billboard.

b. Sky: Goodyear blimp; airplane streamers; sky writing; leaflets from airplanes.

c. Radio: Radio commercials, especially on rock and roll stations.

d. TV: Short and varied spots on TV; during good shows; during pro-military movies; during Saturday morning cartoons, during sports broadcasts; on PBS; on cable TV; flash many impact-type scenes; TV specials; video recordings.

e. Newspapers: Ads and publicity in mass media; special newspaper supplements; local papers; don't rely solely on mass media.

**2. Selective Group Exposure.**

a. Recruiters: Sent out "headhunters;" touring teams; team presentations; active duty volunteer recruiters; young recruiters; AFROTC students as recruiters; chosen for enthusiasm and personality.

b. Selected organizations: Recruit in likely civilian organizations; presentations fitted to each group's field of interest.

c. Colleges: Visit colleges regularly; recruit in college forums, meetings, conferences, career days; recruit in departments of engineering, architecture; visit placement services; publications offices, student organizations; ads in student papers; speakers in classrooms; faculty support.

d. Meetings: Speakers at meetings, banquets, programs, special events; lectures to students; dynamic speakers.

e. Sports: Recruit at sporting events; spots in sports broadcasts.

f. Magazines: Both articles and ads in both professional and popular magazines; messages tailored to each type of reader audience.

**3. Individual Contacts**

a. One-to-One: Word of mouth; friend to friend; student to student; interviews at local level.

b. Mailings: Tests with sample mailing lists with statistical checks of results.

c. Brochures: Glossy brochures for persons contacted; handouts of dynamic visuals.

d. Give-aways: Free gimmicks as continuing reminders.

e. Follow-up: Follow up on contacts; telephone; written; seek some response.

**4. Recruitment Policies**

a. Informality: Friendly image; rapport; rap sessions; take to lunch; picnics.

b. Soft sell: Not overbearing or pushy; sell as if a product.

c. Dynamic: Get attention; eye catchers; colorful language; be different; less conservative; catchy jingles; action films. (Note some contrasts with "soft sell.")

d. Intellectuality: Engineers are educated; rely less on slogans, catch phrases, obnoxious music, asinine jingles; appeal to intellect; they want to KNOW.

e. Realism: Show what our work IS; display what we DO; action scenes; avoid vagueness.

f. Visibility: Make our activities more visible; bring people to our bases; open to the public; open house; welcome tours or student field trips; show us off; dynamic tour guides; exhibit what we have built or done.

g. Truthfulness: Don't over-promise; whole truth; both good and bad; lies don't work; no glamour selling, don't imply that we fly planes; validate recruitment points; get professional validations.

**C. MORALE IMPROVEMENT BY CRAWFORD SLIP METHOD: How to make jobs more satisfying.**

Numerous slips stressed RETENTION efforts along with recruitments. Those writers saw ways to do that by slip inputs from present personnel. Examples follow.

**1. Attitude surveys:** Use slips as economical instant opinion polls; analyze employee relations; attitudes toward the military; consensus measurement; consensus building; previewing acceptance of proposals, test flying of decisions, learning employees' needs and wishes.

**2. Trouble shooting:** Use slips to surface personal beefs; identify what bothers people; forestall outbursts or controversies, air complaints; safety valve for pent-up feelings; identification of points of conflict; improved gripe sessions.

**3. Problem persons:** Use slips to identify shirkers or trouble makers; improved handling of cases of alcoholism or drug abuse; critiques of problem bosses or managers.

**4. Reenlistments:** Get slips on wishes of those approaching reenlistment decisions.

**5. Reasons for leaving:** Get slip feedback on why people quit, reduce turnover by identifying reasons for leaving.

**D. OPERATIONAL IMPROVEMENT BY CRAWFORD SLIP METHOD: How to improve the work.**

Many writers suggested that slips from personnel could improve the work itself and make jobs more productive, successful, and satisfying, thus improving retention. Typical ways follow.

**1. Diagnosing:** Those closest to the work can spot its flaws; slips can help to find what is wrong; identify safety hazards; locate leaks or wastes; point out cost drains; reveal hidden work problems.

**2. Problem solving:** Slips can identify problems and options for solutions; all areas scanned simultaneously; independent inputs from many vantage points; assemble all pertinent factors; pros and cons for decisions; decisions with fewer unknowns.

**3. Planning:** Slips for better plans for new projects or missions; plans for new construction; priorities for long range programs; innovative new projects; spotting overlooked essentials; better designs for things or processes; better procedures; critiques of existing designs; developing new systems; refining existing systems; developing new policies; critiques of existing policies.

**4. Improving:** Slips can aid in refining things or processes; add precision; tighten quality standards; identify and correct errors; improvement by small innovations; progress by "incrementalism."

**5. Coordinating:** Slips can aid combining and sharing ideas within teams; cross-feed between disciplines; spotting and closing communications gaps; better linkages between branches or functions; interdisciplinary inputs for complex projects.

**6. Meetings:** Slips can be ice breakers before discussions, mental warm-up before oral commitments; get full input from all in staff meetings, independent thoughts instead of echoes; hear from all levels in pecking order; better results from advisory groups; meetings with less talking and more thinking; fuller briefings than if done orally.

**7. Upward input:** Slips get more ideas to managers; instant quality circles; instant giant suggestion box; immediate simultaneous suggestion program; generate ideas to evaluate later; use for commander's call; protect anonymity of sources for safe channel for upward flow.

**8. Specific problems or activities to improve:** Slips name an enormous number of Air Force activities which might be improved by slip inputs. An almost random sampling of them follows: Aesthetics of bases; arson; assignments to jobs; contracting; dealines for disaster recovery; dormitories; drug abuse; environment; equipment; Facilities Board; fund raising; material control; recreation; regulations; resource use; safety; snow removal; telephone messages; thievery; time use; training; vacant buildings; vehicles; wartime mobility; welfare; work areas.

**E. AUTHORS' SUGGESTIONS ABOUT USING CRAWFORD SLIP METHOD AS A RECRUITMENT TOOL.**

The foregoing outline is offered as a CASE EXAMPLE of what you can do to build recruitment points for almost any type of job or career. Simply identify the job orally. We prefer to do all the targeting orally instead of putting the directions in all hands to guide their slip writing. You may give it to them later as a handout is you wish. Read the actual sentences as printed. They have been chosen with care. Improvising is unlikely to yield good results.

Your main challenge after you get a good collection of slips will be in CLASSIFYING them for best use in recruiting.

*Dr. C. C. Crawford is professor emeritus in management for the University of Southern California, and is now a management consultant. Dr. John W. Demidovich is a professor of management at the AFIT School of Systems and Logistics. (Authors previously collaborated on "Think Tank Technology for Systems Management," which appeared in the Journal of Systems Management in November, 1981, and on "Linkages on Logistics," which appeared in Spectrum in the summer of 1981.)*

# PROMOTIONS

## TO COLONEL

Richard T. Aldinger
James L. Bannwart
Thomas L. Bozarth
Dwight B. Cavender
Francis A. DeMartino
Mark J. Dierlam III
Joseph W. Fischer (S)
Thomas N. Goode (S)
Roy G. Kennington (S)
Arthur Y. Kishiyama
Lawrence J. Klumas
Ronald S. Leach (S)
David R. Lee
Peter Lopresti
John N. Luebbermann
Eugene A. Lupia
Norwood J. Meche (S)
Wesley D. Nottingham
Louis G. Rever
Raymond E. Rodgers, Jr.
James W. Rosa (S)
Nicholas A. Scambilis
Roger W. Walters
Ralph E. Wyatt
*John Pellek

## TO LIEUTENANT COLONEL

Wesley R. Ardis (S)
Gary H. Bain
Paul D. Baker
Daniel J. Barker
Richard J. Beaudry (S)
Eric A. Beshore
Craig A. Birch
Walter J. Black, Jr.
William M. Deegan
Patrick J. DeMerath (S)
Terry M. Fenstad
William T. Fowler (S)
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Salvador H. Gray
Donald J. Graybill
Charles B. Hand
Steven E. Hawn
Michael S. Hayner
David E. Holdsworth
Gerald S. Hunacek, Jr.
Nathan H. Joyce (S)
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Joseph V. Link
Jeffrey H. Markey
Harry R. McDaniel
Arthur J. Morissette
Robert O. Murphy
William G. Norton
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John E. O'Rourke (S)
Edward L. Parkinson
Gerald L. Plummer
Greg A. Potter
Russell J. Powers
Richard A. Probst (S)
David L. Puzas
James R. Richardson, Jr.
Gerald L. Robinson
Kent L. Rohlof
William M. Shanklin, Jr.
Warren L. Shinker
Charles A. Sippial
Walter E. Smith
Charles D. Sprick
Daniel E. Tatum, Jr. (S)
Billy E. Tolson
James N. Vernon
Peter Walsh
Thomas C. McSwain, Jr. (S)
Jared B. Wilson

## PROMOTED TO MAJOR

Allen A. Alchian
Joseph A. Avallone
Jack T. Baker
Robert D. Baker
Thomas A. Bath
William M. Carter, Jr. (S)
Michael A. Cuddihee
Garry W. Earls
Dick P. Flack (S)
Paul T. Foxworthy
Richard Gammon (S)
Thomas H. Gross
Michael R. Hayes
James F. Karasek
Richard J. Kee
James R. Kennedy
Michael T. Krzykowski
John E. Langsdorf
Barbara G. Lauen (S)
Robert J. Majka
Harry O. Mamaux III (S)
Robert J. McCormick
Ronald P. McCoy (S)
Bernard J. McMullen
Stephen J. Mott
Joseph C. Munter
Thomas W. Olmstead
Thomas J. Padgett, Jr. (S)
Robert L. Peters II
Joseph Rippole
Joel C. Rutledge (S)
William G. Schauz
William H.C. Schell, Jr.
Frederick C. Smith
Rebecca Stone (S)
Gary L. Tucker
Richard VanSaun
Raymond C. Vogel
Anthony M. Wachinski
Joseph P. Ward
Susanne M. Waylett
Donald J. Webb
Edward J. Wydra
George K. Pratt

*William J. Drake
*Leonard D. Fox
*Joseph J. Komisarz (S)
*Jobe C. Tickel, Jr.
*Michael J. Tyce (S)

***Below the zone**
**(S) Services**

# MEETING THE DEMANDS OF FUTURE TECHNOLOGIES

by SMSgt. Edwin T. Doughty, Jr.,

Since its inception during the winter of 1943-44, under the direction of Gen. Henry H. "Hap" Arnold at Geiger Field, Wash., the "Fire School" has established a proud tradition of providing quality fire protection training. As the school enters its 40th year of training, its future for continued excellence and growth is even brighter.

The school currently offers 16 courses, ranging from basic fire fighting to the most advanced fire fighting technology offered to fire chiefs throughout the Department of Defense. More than 3,500 students graduate from the school each year. The school is staffed with a hundred instructors who, for the most part, have been selected from military members serving within the fire protection career field.

The fire school is fortunate to have, at the hub of the organization, a highly qualified and experienced Training Development Section. This section translates fire protection policy and procedure into training curricula. Due to continuous advancements in all areas of fire protection technology, the section is always in the process of updating course material. It is this section that keeps the school in tune with the latest state-of-the-art technologies within the fire protection field.

### The Instructors

Fire School instructors are "second to none." Students consistently remark that the instructors they work with at the school are the best educators they have ever worked with. Inspection teams include such statements in their reports as, "It is apparent that each instructor at the fire school believes 100 percent in what he is teaching." Isn't this what you would naturally expect to hear said of a fire fighter? It is this very image of a fire fighter and their personal value of the profession that inherently make each such an effective and dedicated instructor. Instructor motivation throughout the school is extremely high, whether on a hot and humid day at the burn house or during live fire training at the pits during blizzard conditions.

Most of our instructors volunteered for the controlled four-year assignment. To be selected, the fire fighter must have a General Aptitude Score of 60 (may be waived to 50), outstanding Airman Performance Reports, a flawless military record, and be recommended for the special duty assignment by their unit commander. Once selected for instructor duty, the fire fighter must attend a tough six-week course in technical training methodology. The course is provided by the Faculty Development Division at Chanute. When the new fire fighter instructor becomes qualified to teach within the area they are assigned, each is awarded the "T" prefix to their AFSC. However, this is not all the instructor training; it's back to school with the Faculty Development Division for in-service training for at least a week each year.

### DOD Training

The Fire Fighting School has accepted the challenge for consolidation of training for Department of Defense fire fighters. Since 1980, Chanute fire fighter instructors have been providing basic fire fighting training for the United States Army.

Combining training with our sister services is certainly not an easy task because of the diversified missions and subsequent unique fire protection training needs of each branch of DOD. As a result, it is impossible to develop one specific course of instruction that will satisfy the requirements of all services. In order to make the consolidation, a considerable amount of effort and cooperation is required on the part of each service. The big pay-off will come when interservice fire fighter instructors are working together, allowing the students to capitalize on the combined fire protection knowledge from all the services.

### Certification

Another issue currently under study is the establishment of a fire fighter certification program for graduates of the basic fire fighter course. An application has been submitted to the National Professional Qualifications Board asking for approval of fire fighter certification. If granted, the school will issue certificates to those course graduates who satisfy the National Fire Protection Association's 1,000 series requirements. The application for the certification program has been accepted and the school is currently awaiting a visit from the National Professional Qualifications Board to insure the school meets the accreditation standards.

The value of certification is that graduates of the course offered by the U.S. Air Force Fire Protection School will be granted national recognition for their

training. Presently, graduates are not guaranteed credit outside of Air Force agencies for their training, other than that documented on their transcripts with the Community College of the Air Force.

### New Facility

A new training facility for the school is programmed for construction during fiscal year 1985. The $9.7-million facility will be constructed just south of the Block IV fire training ground. This 90,300 square foot facility will consist of a 46,200-square-foot academic facility with a 44,100-square-foot, high-bay, live equipment training area. Included in this military construction project is a two-story, 7,000-square-foot maintenance support building. The new facility will consolidate most fire school training into one area. One exception is that the rescue school will remain in its current facility. This exception was made upon request of the students because of the unique training qualities of the "tunnels."

We at the school are excited about the new facility because it will give us our own fire school under one roof for the first time. It should be an institution of learning of which we can all be proud.

### Training Days

During 1978 all the fire protection courses were condensed when we went from the six to eight-hour training day. On the average, this reduced course length by 25 percent which impacted the practical training areas of the basic course. Realizing the impact on the career field, the school managers requested and have been granted three additional training days. The additional training time will be spent in increasing the practical proficiency of the basic fire fighter trainees in the structural block of the course. Greater emphasis will be placed on fire hose evolutions, self-contained breathing equipment use, ladder operations, fire apparatus positioning and operations, and automobile fire fighting procedures.

During January 1980, the fire protection supervisor (seven-level) course was eliminated and the advanced fire protection technology (fire chief's) course, came on line. Since then we have realized an increasing need for a mid-level fire protection manager course. Fire protection managers in Tactical Air Command (TAC) took the initiative during 1981 to have such a course reestablished. All other major air commands (MAJCOMs) joined to support TAC's initiative. During a recent MAJCOM conference held at Randolph AFB, Texas, approval was announced to conduct a 10 to 12-day mid-level management course for fire protection supervisors. The course should get underway during early fiscal year 1984.

*SMSgt Edwin T. Doughty, Jr., is currently assigned to the 3340th Technical Training Group as the superintendent of the Fire Protection Branch at Chanute AFB, Ill. A veteran of 21 years Air Force fire fighting service, he received two AAS degrees from the Community College of the Air Force; he holds a bachelor's degree in Business Administration and a master of science in Technology (specializing in fire protection) from Eastern Illinois University. He is a graduate of the SAC NCO Academy at Barksdale AFB, La., and the USAF Senior NCO Academy at Gunter AFS, Ala. He is a Duly Honored Senior NCO, a member of Toastmaster's International, and the Central Illinois Fire Chief's Association.*

### Space Fire Protection

The Department of Defense space shuttle support office at Patrick AFB, Fla. has asked the school to become involved in the space shuttle program. The school's involvement, if it should come about, will be training DOD fire fighters in emergency rescue procedures for the space shuttle. The current thinking along these lines is to establish a mobile training course and incorporate space shuttle rescue procedures into the current Fire Fighter Rescuemans' course.

Those of us in the fire protection business fully realize that quality training is the only way of insuring the readiness of our organizations. The U.S. Air Force Fire Protection School at Chanute stands ready to meet all training needs. Changing technology requires a flexible training program and one that is sensitive to the needs of the field. The school will continue to have these qualities as long as we maintain a steady stream of enthusiastic fire fighters coming from the field to become instructors. The school also benefits from the relentless support from fire protection managers throughout the Air Force. This support, coupled with quality instruction, is the secret to our Fire School's success and will continue to make the U. S. Air Force Fire Protection School the world's best fire protection training institution.

# MOTIVATING AIR FORCE ENGINEERS

by Capt. Hal H. Rumsey

The Air Force has invested billions of dollars in defense installations throughout the world. This facilities provide the backbone of our nation's resolve. Yet without the people who make these installations "tick," they only stand as monuments to ***past*** resolve. It has been said many times before, but it is still true that people are our most important resource. As military engineers, those of us who wear the blue suit are thrust into a role of key importance in the operation of the nation's defense facilities.

As the headlines have made us aware, the entire nation is suffering a shortage of engineering and technical personnel. The Air Force is forced to compete with private and public firms for the best of the engineering talent available. This shortage makes it imperative to keep the best engineers in the service, and get the most out of those who stay.

Motivation has been described as liking to do what you have to do anyway. So, while pursuing a master's degree in engineering management through AFIT, I became interested in finding out what military engineers like about their jobs and how supervisors can make jobs in civil engineering more motivating. I interviewed all the engineers at three southwestern bases. The responses to those interviews, combined with extensive research concerning the motivation of engineers, have revealed some important factors which all engineering supervisors should attempt to use in motivating the people who work for them.

A number of studies have been conducted which indicate that military officers in general are less satisfied with their jobs than are civilians in parallel positions. Fulfillment increases significantly as rank increases, especially above major. The largest differences in satisfaction between military and civilian are concentrated at the lower grades. Based on these studies, it seems that most officers are least satisfied at just that point when they are trying to make the decision to stay in the service or make the transition to civilian life. To counteract, or at least minimize this effect, it is essential that engineering supervisors understand what factors contribute to job satisfaction and motivation.

My research into motivation was based upon the critical incident interview technique developed by Dr. Frederick Herzberg. One of the pioneers of modern motivation theory, Dr. Herzberg developed a two-factor theory of motivation stemming from research he and several colleagues performed on job attitudes. During the research it became apparent to Herzberg that certain categories of factors consistently seemed to be linked with satisfaction, while other factors consistently were linked with dissatisfaction. The first group is referred to as motivation factors, satisfiers, or motivators. The second group is referred to as hygiene factors, maintenance factors, or dissatisfiers. According to the theory, motivators generally contribute to satisfaction, but their absence does not contribute to dissatisfaction. Herzberg concluded that satisfiers and dissatisfiers were not simply on opposite ends of a continuum, but that they were substantially different things. The key factors included in the theory are listed in Table 1.

| MOTIVATIONAL FACTORS |
|---|
| Work Itself |
| Achievement |
| Possibility of growth |
| Responsibility |
| Advancement |
| Recognition |
| **HYGIENE FACTORS** |
| Status |
| Interpersonal relations |
| with supervisors |
| with peers |
| with subordinates |
| Supervision—technical |
| Company policy and administration |
| Job security |
| Working conditions |
| Salary |
| Personal life |

Table 1

The motivation-hygiene theory has been criticized by other psychologists on a number of grounds, but it does provide some interesting and useful keys for examining human behavior. Much of the whole concept of job enrichment has grown from Herzberg's emphasis on the importance of the character of the job itself. The soul of job enrichment thrives on the idea of making the work itself fulfilling.

Job enrichment consists basically of enhancing the five key features of job definition: skill variety, task identity, task significance, autonomy, and feedback. Jobs ideally involve a variety of skills, an extension of the Air Force's whole-person concept, so that our engineers can round out their personalities and enhance their personal expertise in several areas. Instead of dividing each project into numerous specialties and assigning the work out to different engineers, designate project engineers and make them responsible for as much of the project as they can handle. They will not only expand their bank of skills, but they will feel responsible for the entire project. This approach also encompasses the concept of task identity, where one individual is given responsibility for a clearly designated task. All aspects of that

task must be important. Specifically, it must be important enough to demand the attention and skills of an engineer. If the task does not specifically and primarily require engineering expertise, then enrich someone else's job with it. If the job is truly important, and you assign one engineer to be responsible for the job, then give him the autonomy to do the job.

Even if young engineers are in training, they should be given autonomy over as much of the job as they can handle without becoming "bogged down." The key in judging just how much authority to grant growing engineers involves the next step of job enrichment — feedback — frequent, encouragement, concise and honest feedback. One of the greatest complaints among civilian engineers is that they never really know how well they are doing. With the current military rating system, officer effectiveness reports simply do not provide adequate feedback for engineers, especially those who are just starting out in the career field.

Feedback is especially important in a system which appears to reward excellence and mediocrity equally, at least initially. Pay and benefits for all engineers are identical for several years within the service, so supervisors must be especially creative in insuring that "pay" is higher for the top performers. Since there are no promotions or pay raises directly related to education, skill, level of responsibility, productivity, or performance — at least for the first several years — the role of the supervisor in rewarding performance becomes crucial.

While job enrichment can certainly contribute to increased job motivation and satisfaction, it is no panacea. A number of studies have demonstrated that while job enrichment contributes to a sense of personal enrichment, there is not direct correlation between job satisfaction and productivity. It is important to remember, however, that among professionals productivity is associated more with quality than with quantity. Establish a commitment to excellence early in the career; speed will come with experience.

### Air Force Civil Engineers — A Self Portrait

During the interviews I conducted, engineers were asked to recount three incidents during which they felt extremely motivated or demotivated. Each engineer was also asked to name the three most motivating things about a career in civil engineering and the three most demotivating things. Based upon their responses to both the incidents and their subjective opinions, I constructed a portrait of what was important to these engineers. The highest ranking job factors are listed in Table 2.

When the subjective responses were combined with the results of the critical incidents, 11 of the 16 factors named by Herzberg were shown to be statistically validated as either motivation or hygiene factors, or at least were weighted in the direction predicted by the theory. However, then the factors were ranked according to the number of times they appeared in the critical incidents or subjective responses, as shown in Table 2, it becomes obvious that those factors which Herzberg listed as motivators also rank highly as demotivators. While this method of analysis may detract slightly from the two-factor theory of motivation, it emphasizes the importance of the job content in increasing motivation.

Notice that the "Work Itself" appears as both a motivating and demotivating factor in the critical incidents and in the subjective responses. So, it should come as no surprise that many of the engineers I spoke with said that their most rewarding jobs were on remote assignments. They may have hated being separated from their families and having nowhere to go on Friday night, but they loved their jobs. They loved their jobs because they provided the other elements noted in these lists: possibility of growth, recognition, responsibility, and achievement. Returning to "mundane" stateside jobs was often a letdown for these individuals because they had tasted truly enriched jobs.

At the same time, "Work Itself" could be extremely demotivating when it required none of the education and specialized skills most engineers burned the midnight oil trying to master. One of the most frequent complaints was that their engineering skills were chronically underutilized.

### The Motivating Engineering Manager

Motivation that makes for continued high productivity is usually a response to a particular kind of leadership — interested, supportive, non-intrusive. Research has developed a sketch of what the most successful engineering managers look like. A successful supervisor is neither overseer nor enforcer, but an expediter, an information-giver, and an ego supporter. The most important functions of the engineering manager are to recognize performance, counsel specialists, interpret technology for higher management,

**HIGHEST RANKING JOB FACTORS**

| Motivating Factors | Demotivating Factors |
|---|---|
| **Subjective Responses** | |
| Work Itself | Company Policy and Administration |
| Possibility of Growth | Work Itself |
| Salary | Salary |
| Relations with Supervisor | Responsibility |
| Recognition | Achievement |
| Responsibility | Supervisor Competence |
| | Working Conditions |
| | Status |
| **Findings of the Critical Incidents** | |
| Responsibility | Company Policy and Administration |
| Achievement | Work Itself |
| Work Itself | Achievement |
| Possibility of Growth | Working Conditions |
| Recognition | Recognition |
| | Relations with Supervisor |

**Table 2**

minimize paperwork for technical engineers, and to act as coach, mentor, and model for younger engineers. The engineering manager should provide frequent and informative feedback on performance, provide feedback to management so upper management can see through the eyes of the working staff, and encourage engineers to share points of view freely with people from other sections.

Relations with the supervisor was listed as one of the top five motivational factors when the engineers were asked to list those things which would motivate them. In contrast, relations with the supervisor was one of the demotivational factors most listed in the critical incidents. This contradiction seems to indicate that our supervisors are missing an opportunity to wield their influence for good. In fact, the "Pygmalion effect" seems to be crucial to the success of the manager. People often behave exactly as we expect them to behave. What the boss does and the way he acts toward his subordinates may be even more important than what he says. Non-verbal clues can provide more realistic feedback than formal counselling. Engineers need to feel the confidence, respect, and concern that the supervisor has for their capabilities. All of these feelings and attitudes are expressed by such factors as the frequency of meetings between the supervisor and the engineer, the length of the interviews, and the amount of time the employee is kept waiting to talk with the supervisor. Once the interview takes place, the employee is influenced—subconsciously if not consciously—by the office layout, the proximity of the supervisor, the supervisor's posture, eye contact, tone of voice, and rate of speech.

**Conclusion**

Motivation is the result of complex interaction of individual goals and expectations with the total work environment and supervision. The key finding of this research is that individual supervisors play the major role in shaping motivation. Air Force assignment policies, personnel policies, and salary strongly affect retention and career decisions, but day-to-day motivation and satisfaction are products of immediate supervision and the work itself.

The key to applying motivational theory is to recognize that each individual is an individual, with distinct wants, needs, and motives. The key to successful job enrichment is to enrich the job for the individual. Job enrichment is not a policy nor an attitude. It is a one-to-one, supervisor-to-subordinate, tailor-made action. Motivation does not just happen—YOU, the AF supervisor, must make it happen. E&S

*Capt. **Hal A. Rumsey** is chief of Systems Management at the United States Air Force Academy. He holds a bachelor of sciences in Civil Engineering from California State University at Sacramento and a master of sciences in Industrial and Management Systems Engineering from Arizona State University. He is a member of the Society of American Military Engineers, **Alpha Pi Mu** the honor society of industrial engineering, and is a registered Professional Engineer in the State of Colorado. He will begin an AFIT-sponsored doctoral program in Engineering Management in August 1983. A more detailed report of this research will appear in an upcoming issue of **Engineering Management International**, the journal of the American Society for Engineering Management.*

# E&S CIVILIAN CAREER MANAGEMENT PROGRAM

# CIVILIAN CAREERS

**by Charles T. Johnson**

The Engineering and Services Civilian Career Management Program (ESCCMP) is designed to improve career opportunities for the engineering and services (E&S) community. To understand what the ESCCMP is and how it will benefit management and employees, we need to describe some of the basic features of all Air Force career programs.

The main objective of a career program is to serve management by developing key managers and executives for current and future Air Force needs. Employees benefit by gaining training and career broadening experiences that enhance their professional stature and qualifications. Civilian career programs are similar to PALACE programs serving the military force. Benefits include the enhancement of recruitment and retention of qualified personnel, better employee progression opportunities, maximum utilization of skills and potential, and the promotion of Equal Employment Opportunity goals and objectives. A career program attains its objectives and provides these benefits to civilians through involvement in the staffing and employee development processes.

### The ESCCMP

The ESCCMP started officially in November 1980 when Maj. Gen. William D. Gilbert, Headquarters U.S. Air Force Director of Engineering and Services at the time, established a Policy Council for the E&S Civilian Career Management Program and formed an ***ad hoc*** working group. This group was chaired by William Alford from Eglin AFB, Fla., and was comprised of top people from the E&S community. During a very productive two-week session in February of 1981, the group performed crucial initial tasks. It analyzed the work force, recommended basic program policy and direction and wrote the first draft of the program regulation (AFR 40-110, Vol. VII). Group efforts were then reported to the Policy Council during its first meeting in April 1981.

The council, chaired by the director (now Maj. Gen. Clifton D. Wright Jr.,) is comprised of individuals shown in Figure 1. After further meetings by the council and the group, the recruiting was started for the civilian PALACE team.

### PALACE Breakdown

The PALACE team is made of individuals from E&S functions and personnel specialists. Together they develop, operate and maintain the program. The team is located at the Office of Civilian Personnel Operations, Randolph AFB, Texas. I head the team and also serve to represent industrial engineers. Figure 2 shows the makeup of the team. Under Policy Council direction, the team will mold an operational career program.

The program will impact heavily on field installations, major commands, separate operating agencies and direct reporting units. Therefore, coordination from these organizations is obtained on basic program features (e.g., the program regulation, list of career program positions, etc.). Through this activity, Air Force operating managers and executives at all levels have several ways to influence the ESCCMP. Also, they have the opportunity to comment and coordinate on various program aspects and are represented on work groups and panels.

### Program Characteristics

The ESCCMP will be involved in the central management of certain positions in the E&S community. By central management we mean that some positions (called career executive positions) will be filled through a central referral system. This sytem provides the supervisor a listing of the most highly qualified candidates for a given position on an Air Force-wide basis.

Positions selected for central management are called career executive positions. These positions are key supervisory, managerial and executive positions of prime importance to the E&S mission. Career executive positions are primarily at the higher-grade levels (GS-12, GS/GM 13-15). The PALACE team is currently identifying the positions that will be career executive by applying criteria approved by the policy council. Figure 3 shows the series from which the career executive positions will be selected. In the services area, it may be necessary to expand program coverage below the GS-12 level to obtain the number of positions necessary to make the program effective.

Career executive positions will fall into two categories: career essential and career broadening. Career essential positions will be key supervisory, managerial or executive positions. Career broadening positions will be those that provide developmental experiences that are not otherwise available. They will do so by their nature, geographic/organizational and/or duties.

Program participation is open to any Air Force employee who qualifies for a career executive position. Participation begins by registering. (Registration started in September.) Employees register by applying for the program through their local CPOs. The CPO determines qualifications and eligibility. Qualified employees are registered by their CPOs into the Personnel Data System-Civilian (PDS-C). Also entered are the employees' geographical availability data and the lowest GS/GM grades they will accept. Registration is strictly voluntary, but promotional and developmental opportunities are better for those who choose to participate. Employees may compete for career essential positions (e.g., deputy base civil engineer) only if they are registered in the ESCCMP. Thus, registrants will enjoy better opportunities than non-registrants because they'll be able to compete for both types of positions available at each installation. The career executive positions and career general positions (those not centrally managed). Geographic mobility is not required for registration or for many positions. But mobility does increase opportunities for advancement.

The listings of registrants, or certificates, referred to selecting supervisors are prepared by using Air Force-wide promotion evaluation patterns (PEPs). A PEP is a valid, job-related statement of criteria used to evaluate registrants to determine

**THE ESCCMP POLICY COUNCIL**

***Maj. Gen. Clifton D. Wright, Jr., Chairman,***
***HQ USAF/LEE***
***Harry P. Rietman, HQ USAF/LEE***
***J. Craig Cumbey, AF/MPK***
***Frank Flinn, OCPO/MPK***
***Tom Cadogan*, HQ AFLC/DEM***
***Vacant****
***George P. Hayes*, HQ TAC/DEM***
***Dwight Denton*, 1606 ABW/DE, Kirtland AFB N.M.***

****Rotating, 2-year terms***

***Figure 1***

the most highly qualified. It is a blueprint of skills, knowledge and abilities needed to perform in the position. PEPs are developed by functional experts and personnel specialists. When a vacancy occurs in a given position, the mechanized PEP will be used to screen the records of ESCCMP registrants to determine those to be referred to the selecting official. Employees may look at the PEPs to see the credit given to various positions and experiences in determining the most highly qualified. In this manner they'll be better able to plan their career moves to enhance their promotional opportunities.

**Filling the Holes—the Staffing Aspect**

As mentioned earlier, career management vacancies will be filled on an Air Force-wide basis count of the central referral system. Through this system, turnaround time should be within 10 to 15 days from the date the request is received at OCPO. There is additional payoff to management using the world-wide inventory results in improved candidate quality Registrants also get a special benefit. They won't have to worry about missing consideration because of not ***being in the right place at the right time*** with automatic consideration for a vacancy. The promotion certificate will usually have the names of 10 candidates. A separate certificate containing up to 10 names will be issued for reassignments. Thus, a supervisor will usually have a large number of candidates from whom to chose.

**CAREER EXECUTIVE POSITION SERIES**

| Series | Position Title |
|---|---|
| 020 | Community Planner |
| 028 | Environmental Protection Spec. |
| 400 | Selected Biological Science Specialists |
| 801 | General Engineer |
| 808 | Architecture |
| 810 | Civil Engineer |
| 819 | Environmental Engineer |
| 830 | Mechanical Engineer |
| 850 | Electrical Engineer |
| 896 | Industrial Engineer |
| 1170 | Realty Specialist |
| 1173 | Housing/Billeting Positions |
| Various | Services Officer |

Figure 3

**Training—the Employee Development Aspect**

The ESCCMP will actively participate in developing engineering and services personnel. Training efforts will be geared primarily toward the goal of managerial and executive development. Technical training will still remain the responsibility of base-level training programs. The ESCCMP will expand the training and developmental area by identifying career patterns outlining the positions available for progression in the field. Also, they will provide master development plans describing desirable training and educational experiences. A principal benefit will be career counseling on job and developmental opportunities. And, in some cases, providing central funds for training of registrants will be included (another good reason why individuals should participate).

**Other Characteristics and the Future**

Other characteristics are mobility and the career intern program. Mobility is not generally required for participation in the ESCCMP. However, it will be required for a few positions like career broadening and career intern. Advancement opportunities are greater for those who are mobile.

In the ESCCMP, the career intern program sees that an indivdual will be competitively selected for grades GS-5, 7 or 9. These employees, or interns, will participate in a variety of planned developmental activities and experiences. Activities will provide them with an in-depth, overall understanding of Air Force, MAJCOM and base missions, organizational/structures and personnel policies.

You'll be hearing more on the ESCCMP in coming months as the various program aspects are developed. Phase I, which will be the start of the central referral of certificates for selected engineering positions, is scheduled for the summer of 1983. The Policy Council, panels and PALACE team are looking forward to working with the engineering, services and personnel communities as they develop a dynamic, effective career program.

*Charles T. Johnson, Chief of the Engineering and Services Career Management Program Branch, Randolph AFB, Texas, began his civil service career in June 1961. He is an industrial engineer with a dual bachelor of science degrees in Industrial Engineering and Business Administration. He has held positions at Gentile AFS, Dayton, Ohio; Misawa AB, Japan; Hickam AFB, Hawaii; Naval Facilities Engineering Command, Pearl Harbor, Hawaii; and at Military Airlift Command, Scott AFB, Ill. He is a member of the Society of American Military Engineers and is a registered Professional Engineer in the state of California.*

## ESCCMP PALACE TEAM

| | |
|---|---|
| Charles T. Johnson, Chief | Ind. Engr. |
| James P. Magee | Elec. Engr./ATC |
| James P. Curtin | Dep. BCE/Lackland AFB, Tex. |
| Glissie Esquivel | Realty Off./Clark AFB, P.I. |
| Hector L. Corella | Personnelist/Log. Car. Prog. |
| Steve Carter | Personnelist/USAFE |

Figure 2

# TRUK'N ON...

**By Capt. Emmitt G. Smith**

CAT stands for Civic Action Team and 81-09 designates my team which was deployed to Truk Island from September 1981 to April 1982. Through the Prime BEEF Program the Air Force has deployed a CAT to the Truk Islands of Micronesia (See Map -1) since the early 1970's.

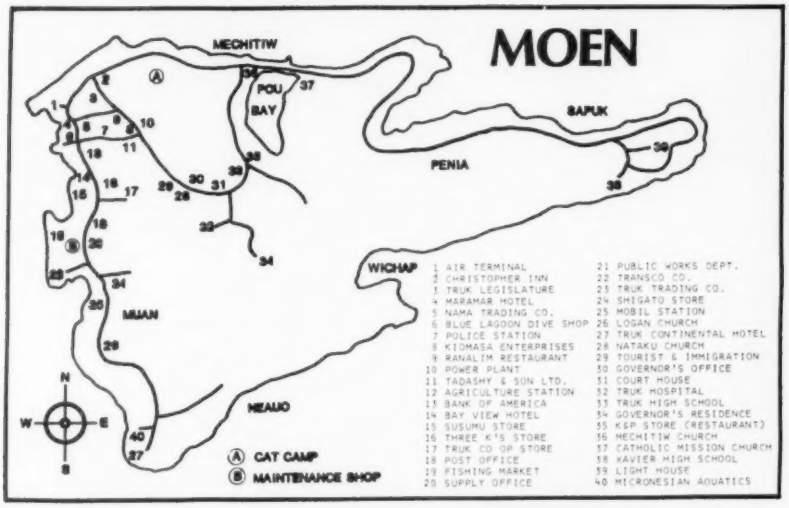
CATs are an elite 13-man construction unit. CAT 81-09 was composed of a Civil Engineer, NCOIC in Heavy Equipment, five equipment operators, three mechanics, one medic, one radio operator/ electrician and one vertical construction specialist. All team members are volunteers and are selected from CONUS bases. These men are, the best in their specialty in the Air Force today.

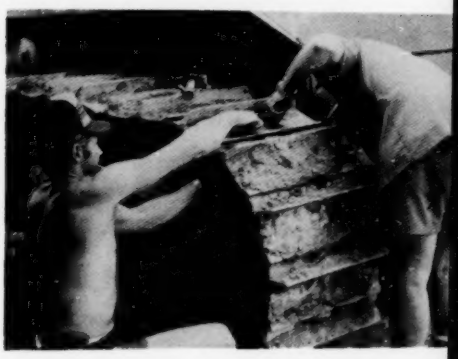
The mission of CAT 81-09 was to assist Truk State in its economic development. By providing needed small-scale, vertical and horizontal construction projects, training the Trukese people in equipment repair and operating skills, relations are enhanced between the Trukese and U.S. The team also provides a military presence in the area. CATs act as informed ambassadors. We were tasked to foster improved relations between Truk State and the U.S.

Operating in Micronesia is drastically different than in the U.S. or on an overseas base. With the exception of one naval officer we were the only military on the island. Since our job required us to work closely with the Trukese people, we had to accept and work within their customs and society. This, and the extremely wet weather, were the major obstacles we had to overcome. Being so isolated from the "western" world, the pace of life in the islands is very slow. We had to get the job done expeditiously and yet not offend the people we were helping. In addition to the unique working conditions, our uniforms were different. Short pants and yellow caps with the letters "CAT" were worn at all times.

Our "military reservation" consisted of three buildings, two of which were constructed by previous CATs. The camp was located on a mountainside and the sunsets were spectacular. Each team member had his own room and — compared to the island standard of living — our quarters were luxurious. Compared to stateside conditions, they were spartan. Rain water runoff from the roof contributed to our water supply which was purified daily by the team's medic. We operated a private mess and lounge. The "CAT House" which was what everyone on the islands called our camp, had power supplied by Truk State. Because the power was unreliable, we also had two standby generators.

The 30th Naval Construction Regiment on Guam had operational control over the team and provided all support required for us to function in our



remote location. Support meant a supply plane every four weeks bringing in food, equipment parts, and a radio contact in case of emergencies.

The Navy had tasked our team with two major projects—construction of a 1.1 mile water well access road and a 20- by 48-foot pre-engineered building. A multi million dollar water well and water distribution system was being postponed pending construction of the road. Surprisingly, Moen Island, in spite of the heavy rainfall, did not have a reliable source of potable water. During dry spells the islanders suffered. The pre-engineered building was to be used as the team's workshop and recreational area.

The water well access road project consisted of building the road through dense jungle in two sections, a 0.5-mile north fork and 0.6-mile south fork. SMSgt. Kenneth L. Conant, MSgt. Edward D. Stedman, MSgt. Jimmy D. Marsh, TSgt. John C. Turner, and TSgt. Rodger D. Woods, were the equipment operators. Together they hauled and placed 7,240 cubic yards of coral and installed 22 culverts. Sea coral was the

material used to construct the road and we operated our own dredge site. Good finger coral is excellent construction material similar to gravel.

Daily rains severely hampered construction efforts as the soil on Truk is a clay with a strong affinity for water. When dry it is very stable; but with moisture it loses all load bearing capacity. Through trial and error we learned to place the coral, then grade, compact it, and then stay off that section until it hardened. From September to December we only managed to construct 1,000 feet of road. December had over 18 inches of rain. As can be imagined, this was a very frustrating period but the road was finally completed in March 1982.

The rugged terrain and salt from the coral caused tremendous equipment repair problems. The mechanics, MSgt. John R. Bosak, SSgt. Glenn P. Lemay and SSgt. Richard G. Sexten, kept all the M-series vehicles operational. Our in-commission rate during the deployment was 95 percent. We were resupplied by a C-130 from Guam only once a month. If we did not have the part, the mechanics made it. Contributions by the three mechanics cannot be overemphasized.

The team's electrician MSgt. Barry L. Gartside maintained the camp's generators, made daily contact with the Navy on Guam. He also taught Trukese missionaries basic electrical wiring and helped wire a local missionary school.

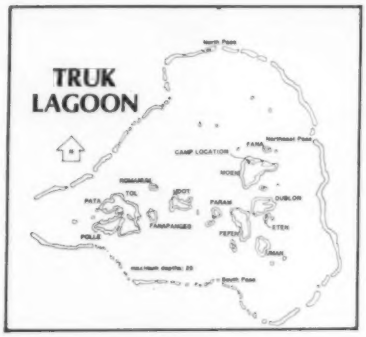
MSgt. Robert "Doc" Dean was a remarkable medic. The Truk Islands have a shortage of doctors and "Doc" did everything. He conducted sick call at the camp, assisted in major surgery at the request of the local surgeons and visited other island clinics.

The vertical construction specialist MSgt. Perry E. Covington supervised construction of the pre-engineered building. The Navy stated the building was the best workshop of the four CAT camps in Micronesia. Sergeant Covington also worked closely with villagers helping them construct a waste catchment system for their two-room school.

CMSgt. David P. Wagner supervised the jobs and operated equipment whenever help was needed. My job was not so much engineering as acting as liaison between the team, the Truk government, local chiefs and villages.

There is not enough space in this article to detail every job every man did, but suffice it to say that every team member did many, many tasks outside his Air Force specialty. One example is that the electrician drove a dump truck, while the equipment operators poured concrete. To survive, to get the mission done, this was a way of life on Truk.

Entertainment on the island was—well, what you made it. Several small restaurants and local weddings or dances provided the nightlife. At the local functions, the team members were treated like honored members of the community. Upon our arrival only three team members were SCUBA divers, however, when we left, 11 of



the 13 men were divers and had explored many of the sunken Japanese ships in the 42-mile-wide lagoon. Fishing is also very good in the lagoon's crystal clear water.

Did we accomplish our mission? Judge for yourself.

CAT 81-09 completed the two major projects originally assigned—the water well access road and the pre-engineered Butler building. The team's commitment to the Trukese people led to the development and accomplishment of 35 other community service projects. These projects ranged from large, such as constructing a water catchment system for an elementary school, to numerous small projects such as constructing an athletic field, or constructing and installing a water tank at the agriculture station. We also had to maintain the camp and completed 29 maintenance projects which ranged from major structural repair to plumbing problems and at times even fixing washing machines.

At the end of our deployment, Governor Erhart Aten bestowed honorary Trukese citizenship on the team members of CAT 81-09. As far as the Navy could determine, this was the first and only instance that citizenship from any country or state has been given to any Civic Action Team from any branch of the service (the Army and Navy also have CATs). We, the members of Civic Action Team 81-09, are very proud that we are, to the best of our knowledge, the only Trukese on active duty with the U.S. Air Force.

Civic Action Team duty is one of the most rewarding and challenging duties available to Air Force personnel. Although its always good to get home at the end of the deployment, we of CAT 81-09 have left a part of ourselves behind and will always remember Truk.

***Capt. Emmitt G. Smith*** *is presently the chief, Resources and Requirements, 3380th Civil Engineering Squardron, Keesler AFB, Miss. Prior to his crossover into the Air Force in October 1980, the captain served four years in the U.S. Army. He holds a bachelors degree in Civil Engineering from the Mississippi State University and has continued his graduate work toward a MBA with the Florida Institute of Technology. He has also attended several courses to further his education in the field of engineering; they include: Engineer Officers Basic Course, Fort Belvor, Va.; Nuclear Chemical Biological Warfare School, Fort Richardson, Alaska; Northern Warfare Leadership School, Fort Greely, Alaska; the Environmental Managers Course, Fort Lee, Va.; and the Base Civil Enigneering Course, Wright Patterson AFB, Ohio.*

# tecnotes

**A PROJECT TO TEST A 40 KW FUEL CELL ON A 1,000 PERSONNEL DORMITORY** at Sheppard AFB, Texas, is proceeding as planned. This is a one-year operational test in which the unit will provide electricity and recovered heat to the facility. DOE will act as our agent in the procurement, installation and testing of the unit. Milestones are to have the data acquisition system (before and after consumption measurement) installed by March 1983 with delivery of the cell by June 1984 and operating NLT September 1986. (HQ AFESC/ DEB, Maj. Odom, AUTOVON 970-6462)

**FIBERGLASS FOD COVERS AND AM-2 MATS** — To clarify the item in the Summer '82 Tecnotes, using FOD covers over crushed stone has been tested with aircraft. The procedure is suitable for repairing both large and small craters. However, FOD covers are not yet in place on airfields, so training on AM-2 matting should continue (AFESC/RDCR Capt. Beyer, AUTOVON 970-6322).

**EVALUATION OF INFILTRATION REDUCTION VIA THE "HOUSE DOCTOR" METHOD CONTINUES.** Ten homes on McGuire AFB, N.J., were completed by Air Force people and 10 more are due to be finished by a contractor using a prototype contract which is being designed for Air Force-wide application. We are investigating the economics and relative merits of this procedure. The final product should be a simplified procedure (nomograph, chart, tables) allowing a base to make a quick and accurate decision as to whether or not infiltration reduction is economically feasible. (HQ AFESC/DEB, Maj. McEvoy, AUTOVON 970-6454)

**GOOD NEWS FROM THE AIR FORCE INDUSTRIAL WATER ANALYSIS LAB** — AFESC has arranged through OEHL, Brooks AFB, Texas, for support from the Radian Corporation to provide back-up analysis of industrial water (boilers, cooling towers, engine jackets, etc.) and to furnish the test kits and reagents for base-level testing previously provided by the Bureau of Mines. This is an interim support arrangement until an Air Force facility, at Wright-Patterson AFB, Ohio, (contractor operated) is established about July 1, 1983. (HQ AFESC/DEMM, Mr. C. Myers, AUTOVON 970-6355)

**IMPROPER MAINTENANCE OF CATHODIC PROTECTION SYSTEMS** has been noticed recently. Several incidents involving improper maintenance of cathodic protection systems by contractors were found. In one case, new coatings on the interiors of two water storage tanks were destroyed by improper turn-on and adjustment of the newly installed cathodic protection systems by the contractor. In another case, coating was blistered and the anode system was damaged by improper adjustment by contractors making annual inspections and adjustments of cathodic protection systems on water tanks. These incidents point out the need for bases to obtain the capability to maintain their own cathodic protection systems or to insure that contractors are maintaining these systems within proper limits. Newly revised AFM 85-5, Maintenance and Operation of Cathodic Protection Systems, gives guidance. Courses are available at Sheppard Technical Training Center and at the Air Force Institute of Technology. These cases of improper maintenance of cathodic protection systems cause costly damage to Air Force facilities and waste operation and maintenance funds. (HQ AFESC/DEMM, Mr. Lewicki, AUTOVON 970-6352)

**A SYMPOSIUM ON THE INTERACTION OF NON-NUCLEAR MUNITIONS WITH STRUCTURES** is being sponsored jointly by the Engineering and Services Laboratory, the Armament Laboratory, the Weapons Laboratory and the Office of Scientific Research. The symposium will be held at the U.S. Air Force Academy, Colorado Springs, Colo., May 10-13, 1983. The program will cover topics in all areas associated with dynamic loading of buried and above ground concrete structures. (HQ AFESC/RDC, Capt. Wilson, AUTOVON 970-6275)

**A DURABLE AIRFIELD MARKING MATERIAL,** which retards rubber buildup and doesn't need resurfacing for at least 10 years, has been under development at the Engineering and Service laboratory at Tyndall AFB, Fla. The material is a composite of Teflon® metal which is flush mounted and bonded with an epoxy-amide resin. All tests to date have shown that the marking material can withstand landing loads by the heaviest aircraft in the Air Force inventory. Expanded field tests at the U.S. Navy and Army installations are planned for early FY 83 with Air Force testing late FY 83. (HQ AFESC/RDCF, Maj. Centrone, AUTOVON 970-6274)

**INTERIM GUIDANCE ON SURFACE ROUGHNESS FOR F-15, F-16 and A-10s** will be distributed to MAJCOMs soon. This guidance designates crater repair qualities and specifies required spacing between repairs. Use of this guidance will ensure maintenance of acceptable levels of stress on aircraft components. Also, surface roughness criteria helps guide the selection of the minimum operating strip which requires the least amount of time to repair. (HQ AFESC/RDCR, Capt. Pearson, AUTOVON 970-6328)

# New Deputy Director Is Brig. Gen. Alkire

The new Deputy Director of Air Force Engineering and Services will be Brig. Gen. Melvin G. (Gary) Alkire, currently Deputy Chief of Staff, Engineering and Services, Air Force Logistics Command, Wright-Patterson AFB, Ohio.

Maj. Gen. Clifton D. Wright Jr., Air Force Director of Engineering and Services, made the announcement. The deputy's position became vacant when General Wright succeeded Maj. Gen. William D. Gilbert in August.

"General Alkire's varied and diversified background in engineering and services will be of tremendous value in Washington," said General Wright. "General Alkire has served as the Deputy Chief of Staff for Engineering and Services at two major commands, and as the assistant DCS in Europe. Having him on the staff in Washington will greatly strengthen our support of programs affecting virtually every level of Air Force activity. We welcome him as a person familiar to the 100,000 members of the E&S team throughout the world."

General Alkire will be succeeded at AFLC by Brig. Gen. William M. (Marty) Shaw Jr., now vice commander of AFLC's Warner Robins Air Logistics Center, Robins, AFB, Ga. AFLC constitutes the industrial heart of the Air Force, responsible for maintenance and repair of most Air Force weapons systems and components now in service.

General Alkire is a 1957 graduate of the U.S. Naval Academy. He was commissioned into the U.S. Air Force. He holds a master of Science degree in Civil Engineering from Purdue University. He completed Squadron Officer's School by correspondence. He is a graduate of the Air Command and Staff College, and the Air War College. He also graduated from the Industrial College of the Armed Forces.

Gen. Alkire

Gen. Shaw

His first Air Force assignment was in civil engineering planning and programming at Francis E. Warren AFB, Wyo. He has served at Toul-Rosieres AB, France, in Vietnam, at England AFB, La., had two tours in the Pentagon, in addition to his other key assignments.

In 1979 he earned the Newman Medal awarded by the Society of American Military Engineers for the most outstanding contribution to military engineering through achievement in design, construction, administration, research and development. His military decorations and awards include the Legion of Merit with two oak leaf clusters, the Bronze Star, Meditorious Service Medal, Joint Service Commendation Medal, and the Air Force Commendation Medal with one oak leaf cluster.

"We welcome General Shaw back into the E&S family," said General Wright. General Shaw served as the base civil engineer at Hill AFB, Utah, before becoming the assistant DCS/Engineering and Services at AFLC headquarters. He was commander of AFLC's Logistics Support Group in Saudi Arabia, responsible for all military purchases by the Saudi Air Force, before his current assignment.

General Shaw is a native of North Carolina. He graduated from North Carolina State University in 1955 with an Industrial Engineering degree. He later earned his master's degree from St. Mary's University, San Antonio, Tex.

General Shaw is a graduate of Squadron Officer's School, the Armed Forces Staff College and the Air War College. He completed ICAF by correspondence. A master navigator, he served on C-124s during his early career. Other key flying assignments include the Special Air Mission Squadron at Andrews AFB. He was assistant professor of Aerospace Studies at Rutgers University. In his varied career he has served as Chief of Industrial Engineering, Director of Operations and Maintenance, and Chief of Programs in addition to serving as Base Civil Engineer.

His decorations and awards include the Legion of Merit, the Meritorious Service Medal with two oak leaf clusters, the Air Force Commendation Medal with three oak leaf clusters, and the Purple Heart. He is a registered professional engineer in Texas.

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